

THE LARGEST MODEL HOBBY MAGAZINE IN THE WORLD

# AMERICAN aircraft modeler

U.S. ONE DOLLAR TWENTY FIVE CENTS

SEPTEMBER 1974





# Beginners Control



## Look like real planes!

**Perfect for  
control-line  
beginners**

**solid balsa  
construction  
withstands  
hard landings  
time after time**

### Scientific Beginner Models are better than profiles...here's why:

Most profile models have a plain, flat wing. Scientific's full-fuselage models have an extra-lift, one piece *air-foiled* solid balsa wing. Gives extra lift; makes flying and difficult maneuvers easy.

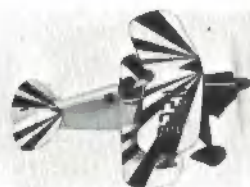
Scientific models have an exclusive pre-carved balsa body (not just a thin sheet of wood) which gives you a sturdier more realistic flying model.

You also get these other features:

- Extra-strength plywood motor mount
- Strong, formed metal landing gear and wheels
- Complete colorful decals
- Complete control assembly including formed metal bellcrank, hardware, control rod and horn
- Tailwheel or metal skid assembly
- Elevator hinges
- Precision die-cut fin, rudder and elevator
- Plastic engine cowling, canopy and windshield (on most models)
- Complete step-by-step assembly instructions



One look will tell you these Scientific kits are designed to get you flying F-A-S-T! Every kit is specially designed for engines .020 to .049. You're not limited to just one engine size. And they're just as easy to build as profile kits... but look like a real airplane. Whether you're a beginner or a pro, Scientific flying models are your best buy!



Kit 20 LITTLE STINKER, 18". Popular aerobatic speedster.



Kit 26 LITTLE MERCURY, 18". Easy to build and fly.



Kit 70 F-51 MUSTANG, 21". Famous WW II fighter.



Kit 72 SUPER STUNTMASER 20". A built-up wing stunt sensation.



Kit 74 MESSERSCHMITT ME-109, 18". German WW II fighter.

HERE'S THE COUNTRY'S HOTTEST

## rubber flying model *Sky Master*

Featured In the Movie  
"THE LONG FLIGHT"



**BIG 36 INCH WINGSPAN**

**YOU FLY IT A MILE...** with truly amazing performance like you never thought possible. Big deluxe kit includes Hi-Thrust Propeller, Formed Leading and Trailing Edges, Formed Wire Parts, Pure Contest Rubber Drive, Colorful Decals and Full Size (44") Easy to Follow Plans.

**\$5.49**

KIT 160

**SCIENTIFIC MODELS INC.**

340DY Snyder Avenue • Berkeley Heights, New Jersey 07922

SEE YOUR DEALER. If kits are not available at dealer, you may order direct from factory adding \$1.00 for postage and handling. Outside U.S.A. add \$2.00.

# • Line Models

## Fly like real planes!

**SCIENTIFIC**



21 popular models  
to choose from:

**\$5<sup>49</sup>**  
each

### P-40 FLYING TIGER

Kit #59. Famous World War II  
Fighter with 18" wingspan.  
Looks and flies like the  
real plane.

Photos of actual models



Kit 60 STUKA DIVE BOMBER 18"  
Scale model of W.W. II fighter



Kit 65 PIPER CUB TRAINER 18"  
Famous private trainer



Kit 48 GOLDEN HAWK 18". A great  
model for fun flying



Kit 25 STUNT MASTER 18" One of  
America's most popular stunt models.



Kit 30 RED DEVIL 18" Great train-  
ing model for beginners



Kit 6 CESSNA BIRD DOG 18" Scale  
model U. S. "Flying Jeep"



Kit 54 CESSNA "182" TRI-CYCLE  
High performance private plane



Kit 14 PIPER TRI-PACER 18" with  
popular tri-cycle landing gear



Kit 28 LITTLE DEVIL 18" Fast, easy  
to fly, great performer



Kit 7 CESSNA "180" 18" Model  
has good looks, great speed



Kit 53 RED FLASH 18" Model has  
sleek looks, good control



Kit 11 PIPER CUB CRUISER 18"  
Most famous of all Piper Cubs



Kit 66 ZIG ZAG 18" A stunt sensa-  
tion, great looks too



Kit 18 LITTLE MUSTANG 18" Fast  
easy to fly semi-scale model



Kit 29 LITTLE BIPE 8 1/2 sq. in.  
wing area, 2 preshaped wings

Send for our big colorful catalog . . . only 25¢

SEE YOUR DEALER. If kits are not available at dealer, you  
may order direct from factory adding \$1.00 for postage and  
handling. Outside U.S.A. add \$2.00.



# AMERICAN aircraft modeler

VOLUME 78, NUMBER 9

SEPTEMBER 1974

## COVER STORY

Floyd Carter's Lepere is a striking example of scale fidelity. The model is the subject of a double feature article beginning on page 18.



Page 19



Page 26

## MODELS

- 19 LEPERE L.U.S.A.C.-11 *by Floyd E. Carter*
- 26 AEROSPORT *by William E. Patterson*
- 33. SUPERSWEEP *by Ron Wittman and Bob Meuser*
- 43 MAX-FLY *by Gil Rifkin*
- 51 YANKEE *by Bob Noll*

## FEATURES

- 4 DAVE PLATT'S LATEST... A DUCTED FAN ME 262 A-1a *by Dave Platt*
- 8 TORREY PINES TRICATHLON *by Paul Denson*
- 16 THE COCKPIT *by Richard Uravitch*
- 18 A LA RECHERCHE DU LEPERE *by Patricia T. and M. B. Groves*
- 40 ELECTRI-FLYING DREAM, PART II *by Mitch Poling and George Beaver*
- 50 PAINT FOR PERFORMANCE *by Bob Noll*
- 114 ON THE SCENE: BAKERSFIELD *by Bob Stockwell*

## CONTEST BRIEF

- 12 '74 AEROLYMPICS

## WHERE THE ACTION IS

- 60 HELICOPTERS: JOHN BURKAM
- 60 BIPES 'N TRIPES: O. L. OLSON
- 61 ELECTRIC FLIGHT: MITCH POLING
- 62 L/D=: ERIC LISTER
- 63 STUNT: DON LOWE, LEW McFARLAND
- 64 RACING: BOB STOCKWELL
- 65 RACING: JOHN SMITH
- 66 DURATION: CARL MARONEY, BOB MEUSER
- 68 SCALE: CLAUDE McCULLOUGH, WALT MOONEY

## DEPARTMENTS

- 32 GETTING STARTED IN RC *by Jim McNerney*
- 48 AAM TESTS
- 56 NEW PRODUCTS CHECKLIST *by Eric W. Meyers*
- 86 PLANS SERVICE
- 112 INDEX TO ADVERTISERS
- 113 CLASSIFIED ADS/QUALITY HOBBY SHOPS
- 116 OFF THE SCENE/COMING NEXT MONTH

## ACADEMY OF MODEL AERONAUTICS

- 97 AERO-CRAFTS '74
- 99 PRESIDENT'S MEMO
- 100 AMA NEWS BITS
- 101 AMA OFFICER DIRECTORY
- 102 LIFE MEMBER PROFILE: ED MANULKIN
- 103 CONTEST CALENDAR

A substantial discount for a subscription to *American Aircraft Modeler* is offered to members of the AMA. Write directly to the Academy of Model Aeronautics for further information.

# MIDWEST

PRODUCTS COMPANY

The sky in  
your hands!



## PITTS SPECIAL

Jerry Nelson's Sport Scale design to meet Biplane Aerobatic Class. For .40 to .60, 4 channels. Span 48 in. Area 700 sq. ins.  
Kit #131

Price later.



## STRIKEMASTER

Looks hot, behaves easy. Fully aerobatic - yet very docile! Balsa with foam wing. Span 55 in. .19 to .40.  
Kit #130

\$42<sup>95</sup>



## MACH 1

Sleek pattern ship for .60's. Balsa with foam wing and stab. Span 62 in. 725 sq. ins.  
Kit #127

\$54<sup>95</sup>



## CARDINAL ARF

All foam ARF. Tremendous popularity. Rugged, ideal rudder or multi trainer. 48 in. span. .049 - .15.  
Kit #125

\$24<sup>95</sup>



## CARDINAL SQUIRE

Move up to .60 size - sleek semi scale advanced trainer. Balsa fuselage; foam wing, stabilizer. Span 73 in.  
Kit #128

\$54<sup>95</sup>



## DAS LITTLE STIK

48 in. span. .19 to .23 power. Ultra simple full house sport trainer. Ever popular.  
Kit #122

\$25<sup>95</sup>

## SWEET STIK

600 sq. in., 54 in. span version of Little Stik. .19 to .45.  
Kit #128

\$37<sup>95</sup>



## LIL T

Big 74 in. span glider. Ideal slope, tow, hi-start or power pod. Self align build.  
Kit #121

\$19<sup>95</sup>



## LIL TRI SQUIRE

Span 40 in. .049 to .09. Simple, easy flyer.  
Kit #109

\$14<sup>95</sup>

## TRI SQUIRE

Span 52 in. Power .09 - .19. Ideal step from rudder only.  
Kit #106

\$19<sup>95</sup>



## SUPER CHIPMUNK

All foam ARF. 3 to 4 channels. Power .10-.19.  
Kit #126

\$24<sup>95</sup>



Please send me your illustrated catalog of models and accessories. I enclose 25¢

Name

Address

City

State  Zip

**MIDWEST PRODUCTS CO.**

400 South Indiana St.,

Hobart,

Indiana 46342





A masterpiece of design refinement, the Me 262 was well over 100 mph faster than Allied fighters in 1944. The fuse is ready for paint here, while the wings will be glassed and resined.

DAVE PLATT'S LATEST...

## A Ducted Fan Me262 A-1a

In the July issue of AAM in Don Lowe's and also in Claude McCullough's column, mention was made of my scale Messerschmitt 262. A couple of errors appeared in these descriptions which, if not corrected, might mislead ducted fan enthusiasts. (Both Don and Claude picked up their information from a newsletter source, which listed inaccurate figures—php.)

The motor used is a 40 RC pylon racing type, as stated, but the fan diameter is 5", not 3½". I don't believe a single-stage 3½" fan could absorb the torque of a 40 and make efficient use of the available power.

The other thing is that the scale of the model is 2¼"=1', giving a span of 92", not 70". The engines are some 28" in length. The 6.2 lb. thrust figure is misleading too (see later). This corrects the errors, but some additional information may be of interest:

Along with Bob Talchik of Chicago, I have now spent three years playing with fan-powered models. My part was to design the "aerodynamics" of the engine, while Bob found ways to make the rather exotic parts I called for. I doubt that anyone in the U.S. has developed

more technique than Bob in working with fiberglass, a material we used extensively in our engines.

For the same reasons Bob Violet gave in his absorbing Sundowner article (July AAM), we chose the 40 size from the outset. We have used the "old-style" K&B, HP, ST G-40 and, lately, the new K&B and the ST X-40. We started with 5" diameter fans and still use this size, though pitch, airfoils, washout, number of blades and blade planforms have been varied almost infinitely.

There are essentially two basic differences between our engine and the Scozzi unit used in the Sundowner: (a) Ours mounts the fuel tank as an integral part of the whole engine, resulting in greater length and weight, and (b) we meant to use our engine in scale or stand-off scale models. Thus, we concentrated on getting thrust in an internal-engine situation. The aerodynamics of an external or ultra-short-pipe engine and those of an engine buried in a fuselage perhaps 50" long may be quite different.

By taking a reasonably sophisticated approach at the beginning (far removed

(Continued on page 79)

The 262 is a rather large project. The final weight will be about 14-15 lb. Quite a comment on the state of ducted fan technology.



**AAM** Potomac Aviation Publications, Inc.  
733 15th Street, N.W.  
Washington, D.C. 20005

EDWARD C. SWEENEY, JR.  
President and Publisher

● PATRICK H. POTEGA  
Editor

Contributing Editors

JOHN BLUM  
BILL BOSS  
JOHN BURKAM  
PAUL DENSON  
MONTY GROVES  
PATRICIA GROVES  
DON LOWE  
FRED MARKS  
CARL MARONEY  
CLAUDE McCULLOUGH

LEW McFARLAND  
JIM McNERNEY  
BOB MEUSER  
WALT MOONEY  
PAT MURPHY  
CAS PELS  
MITCH POLING  
JOHN SMITH  
BOB STOCKWELL

● J. ALLEN MILLER  
Copy Editor

● HERBERT L. SILBERMANN  
Art and Production Director

CAROLYN A. MUNSON  
Assistant

LOIS E. HOOVER  
Assistant

WILLIAM P. KOCHANSKI  
Compositor

● HARVEY E. CANTRELL  
Business Manager

ABDUL M. SAYEEDI  
Assistant

● GRETCHEN KNOWLES  
Subscription Manager

MARK K. WINTER  
Assistant

● DOUGLAS H. BOYNTON  
Manager of Advertising Sales

ERIC W. MEYERS  
Assistant

Published monthly by Potomac Aviation Publications, Inc., 733 Fifteenth Street, N.W., Washington, D.C. 20005, Edward C. Sweeney, Jr., President; Walter L. Hulstedt, Treasurer; Harvey E. Cantrell, Business Manager and Secretary.

**ADVERTISING DEPARTMENT:** All advertisers' orders and correspondence to 8001 Forbes Pl., Suite 210D, Springfield, Va. 22151. (703) 321-7745.

**TRUTH IN ADVERTISING:** AAM will not knowingly insert advertisements from other than reliable firms.

**SUBSCRIPTION RATES:** In U.S., Possessions and Canada, 1 Year, \$12.00; 2 Years, \$23.00; 3 Years, \$35.00. Elsewhere \$14.00 for one year. Six weeks are required for change of address. In ordering a change, write to American Aircraft Modeler, 733 Fifteenth Street, N.W., Washington, D.C. 20005. Give both new and old address as printed on last label.

**EDITORIAL DEPARTMENT:** Manuscripts, photographs and art materials are welcome and will be carefully considered. Article and photo specification sheets are available to potential contributors upon request. Postage must accompany all submittals if return requested. Contributions are assumed to be exclusively the property of AAM. All rights reserved. Nothing may be reprinted in whole or in part without written permission from the publishers. We cannot accept responsibility for unsolicited manuscripts or artwork. When writing the editors, address letters: Editorial Office, American Aircraft Modeler, 733 Fifteenth Street, N.W., Washington, D.C. 20005.

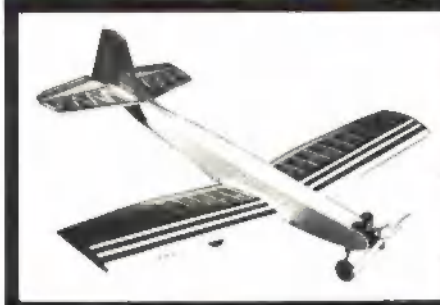
**POSTMASTER:** Send Form 3579 to American Aircraft Modeler, 733 Fifteenth Street, N.W., Washington, D.C. 20005.

Second class postage paid at Washington, D.C. and at additional mailing offices. © Potomac Aviation Publications, Inc., 1974; all rights reserved. Printed in U.S.A.



# YOU DON'T HAVE TO BE AN EXPERT TO HAVE FUN WITH A DUMAS KIT.

## In the air...



### HI LO EVOLUTION KIT RC-11

The most versatile fun RC airplane. Build it as a glider, soarer, trainer or sports plane by changing wings, ailerons and tail. For engines up to .19



### THE LITTLE TOMAHAWK KIT C-16

Lightweight, low cost model for learners or sport. Easy to build and gives fine performance with .19 engine.



### CORSAIR KIT C-35

A profile control line stunt plane that looks like a jet but flies with a .35 engine. Great for slow combat, too.

## or on the water



### ACE RACING SLOOP KIT RS-17

Completely prefabricated operating model. Includes all necessary rigging, fittings and sails. Perfect for swimming pool or small lake.



### 19" LIGHTNING KIT RS-219

A 1" - 1' scale model. Easy to build with plywood frames and mahogany planking. Ideal for display or free sailing.



### 45" STAR KIT RS-45

A fun-to-build model that's even more fun to sail. Birch plywood hull, mahogany deck, hardware and sails included. 1- or 2-motor sail trimming mechanisms available. 2-motor control jib and mainsail independently. 30" model: Kit RS-30.



### ALCORT SUNFISH KIT RS-20

A 20" scale model: mahogany hull, ready made red and white striped sails, and weighted dagger board for sailing. Leave weight off for display.



### SHELLEY FOSS TUGBOAT KIT TU-36

A 36" scale model of one of America's newest type 90' tugboats. All deck hardware included. For RC, free running or display. Fiberglass hull (only) also available for "scratch" builder.

See your hobby dealer or send 50¢ for our new catalog of model boats and planes.

**dumas**  
**boats**

**dumas**  
**planes**

Dumas Products, Inc. 790 South Park Avenue Tucson, Arizona 85719



**NEW!** J.J. Scozzi "TURB-AX 1" DUCTED FAN - \$69.95



Simulated jet flight for RC and control line flying has arrived. Scozzi's TURB-AX 1 ducted fan took 3 years of engineering and some fancy mold-making and metal casting to bring to reality. Constructed of glass-filled nylon and precision-cast aluminum, the TURB-AX 1 completely encloses your rear intake .40 engine. 6

pounds of thrust from the 5 blade turbine impeller give spectacular performance and a unique sound. The 5 3/8" outside diameter of the main stator housing fits into the size range needed for scale-like RC jet aircraft. Instructions (included) are excellent.

**COMING SOON!**

Ace R/C PACER

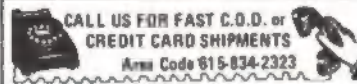
List price \$19.95

**HLP** \$15.97



Not a beginner's airplane, PACER is a 40" span hot RC mini-multi plane that zips along at 60-70 mph, penetrates the wind, axial rolls, and otherwise behaves like the .60 powered bombs, but PACER operates with a Cox TD .049 or .051. PACER performs giant loops and otherwise grooves along like a contest pattern airplane on about 50¢

worth of fuel an afternoon. Builds very quickly with its Ace foam wing. Use 2 servos for ailerons-elevator, or coupled aileron/rudder-elevator. These might just be in our stock when this ad comes out.



**NEW!** Bridi "Quik-Stripe" STRIPING TAPE

This tape seems to be the same product as Goldberg's "DJ" Striping Tape. It lies as flat as a paint stripe, and gives a finely finished look to any plane. 36 feet of tape per roll. Colors: Red, White, Black, Gold, Blue.  
1/16" wide ... \$1.98/roll  
3/32" wide ... \$2.69/roll  
1/8" wide ... \$2.69/roll  
1/4" wide ... \$3.69/roll



**COMING SOON!**

Mark's Models BUSHWACKER

List price \$44.95

**HLP** \$34.97



Here's the U-2 of radio control - a 69" span .15-.19 powered 4 channel aircraft that'll perform the entire stunt pattern, but will turn on a dime and land like a feather. BUSHWACKER is an oddly complete kit (conventional balsa construction) and includes; fuel tank, wheels, spinner, push rods, clevises, bolts, wheel pants, and muffler (figure that one out!)

**SPECIAL!** Airtronics ACRO-STAR Biplane

List price \$74.95

**HLP** \$59.47

50 1/2" span, for .40-.60 engine.



**SAVE \$\$ ON THESE MATCHED COMBINATIONS** "prices in effect until Sept. 15, 1974"

**Ace ALL STAR BIPLANE 34"** foam wings and Fox 15 R/C Engine  
Total list value \$42.90 **PRICE** \$30.00

**Lenier SPRINT 25 A-R-F** and Fox 19 R/C Engine  
Total list value \$71.90 **PRICE** \$49.00

**CONTROL LINE COMBOS**  
Sterling RINGMASTER and Fox 35 Stunt Engine  
Total list value \$29.90 **PRICE** \$23.00

**Sig PIPER J-3, 72"** and Fox 111 RC Engine  
Total list value \$56.90 **PRICE** \$47.00

**V-K CHEROKEE BABE** and Fox .36 RC Engine  
Total list value \$61.90 **PRICE** \$44.00

**Top Flite HEADMASTER** and Fox 19 R/C Engine  
Total list value \$45.90 **PRICE** \$32.00

**Lenier COMET II A-R-F** and Fox EAGLE 60 R/C Engine  
Total list value \$121.90 **PRICE** \$79.00

**Sterling RINGMASTER, JR.** and Fox 15 Stunt Engine  
Total list value \$22.90 **PRICE** \$18.00

**Midwest DAS LITTLE STICK** and Fox 19 RC Engine  
Total list value \$51.90 **PRICE** \$37.00

**Sig KOMANDER 62"** and K&B 40 R/C Engine  
Total list value \$77.50 **PRICE** \$61.00

**Midwest (all foam) CESSNA CARDINAL A-R-F** and Fox 16 R/C Engine  
Total list value \$45.90 **PRICE** \$31.00

**Bridi RCM TRAINER 40** and K&B 40 R/C Engine  
Total list value \$87.95 **PRICE** \$66.00

**Sig KADET 57"** and Fox 19 R/C Engine  
Total list value \$51.90 **PRICE** \$41.00

**Midwest LITTLE "T" GLIDER** and 1 roll TF Super Monokote  
Total list value \$428.05 **PRICE** \$20.00

**Bridi RCM BASIC TRAINER** and Fox 19 R/C Engine  
Total list value \$55.90 **PRICE** \$40.00

**Mark's WINDFREE GLIDER** and 2 rolls T/F SUPER MONOKOTE  
Total list value \$56.15 **PRICE** \$38.00

**Bridi SUPER KAOS 40** and K&B 40 R/C Engine  
Total list value \$89.95 **PRICE** \$68.00

**Sig KADET 57"** and Fox 19 R/C Engine  
Total list value \$51.90 **PRICE** \$41.00

**Midwest STRIKEMASTER** and Fox 35 RC Engine  
Total list value \$72.90 **PRICE** \$51.00

**Mark's WINDWARD GLIDER** and 1 roll T/F SUPERMONOKOTE  
Total list value \$38.05 **PRICE** \$27.00

**SPECIAL!** Airtronics QUESTOR Glider

List price \$34.95 **HLP** \$28.47

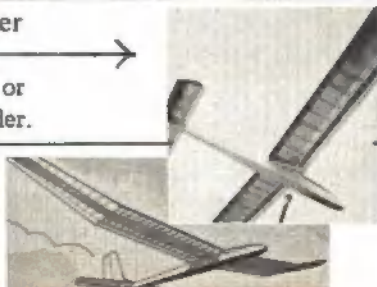
62" span, 409 sq. inch wing area for slopes or thermals. Easy construction. Good first glider.

**SPECIAL!** Airtronics OLYMPIC 99 Glider

List price \$49.95

**HLP** \$39.97

99" span, 790 sq. inch wing area thermal RC soarer.



**TRY US OUT: R.S. did.**

"I couldn't believe the service I received from you. I've ordered products from other companies and it has taken 3 weeks, but ... just 8 days from Hobby Lobby."

R.S. Ithaca, Mi.



# You'd expect to pay over four hundred dollars for such a radio.

RC MODELER MAGAZINE SAYS:

"Our (Hobby Lobby 5) has performed flawlessly under all conditions and its performance has equalled or exceeded systems selling for twice the price. ... If you want an extremely precise system that will offer you years of reliable service, then we seriously recommend the Hobby Lobby 5 to your consideration."

•Unsurpassed Reliability

•Extremely Long Range

•Smallest, Lightest Servos Made

•Extra servos cost only \$13.00 each.



•I.C. FULL-POWER servo amplifiers

•Full 90 day Warranty—backed by the manufacturer and by Hobby Lobby

•A complete system: Transmitter, Receiver, 4 servos, all n-cads, charger, 27 or 72 mhz.

•PRICE: About HALF of what you'd expect to pay for a top quality 5 channel system.

•Only 11½ oz. airborne weight

**Series III**

**HOBBY LOBBY 5 Digital Proportional \$209**

•Improved Airborne Battery pack with ONE-CELL-OUT flight capability

Please call or write for FREE brochure, or, better yet just order the radio—they're in stock.

## NEW! Goldberg AILERON COUPLER 69¢

Here's a gadget I've wanted to use for the past fifteen years. That nasty little task of hooking the aileron push wire to the servo has always been one of those disagreeable little jobs that cried for a simpler solution.



## NEW! 2 large size SULLIVAN FUEL TANKS

SS-14, 14 oz. capacity \$2.25  
SS-16, 16 oz. capacity \$2.25

## SPECIAL! Hobby Lobby Special Surgical Rubber Fuel Line Tubing

10 feet - \$1.99  
For engines .09-.80  
Thick wall resists kinks.



## HERE'S EVERYTHING YOU NEED TO KNOW ABOUT R/C:

"EVERYTHING YOU SHOULD KNOW ABOUT RADIO CONTROL FLYING"

or  
How to get 1000 Flights out of your RC Airplane



A beginner's book that tells you how to avoid the frustrations and crashes of learning to fly Radio Control \$3.95

HOBBY LOBBY 96 PAGE FULLY ILLUSTRATED CATALOG. More RC goodies, more photos, more of the LOWEST DELIVERED PRICES in the RC hobby. \$2.00



## Solarfilm IS BACK!

26" wide rolls, 6 feet long. No limit.

•OPAQUE COLORS—Bright Red, Dark Red, Orange, Yellow, White, Silver, Tropic Blue, Midnight Blue, Black.

List Price \$7.50 per roll. **PRICE \$4.44 per roll.**

•TRANSPARENT COLORS—Transparent Red, Transparent Orange, Transparent Yellow, Transparent Blue.

List Price \$8.25 per roll. **PRICE \$5.44 per roll.**

•METALLIC COLORS—Metallic Red, Metallic Green, Metallic Gold. List Price \$9.75 per roll. **PRICE \$6.44 per roll.**

## NEW! Lanier A-R-F COMET 35

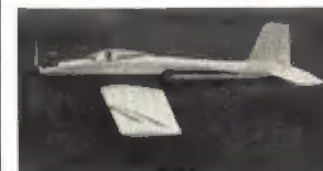
List price \$45.95  
**HLP \$36.97**



Previously known as the SPRINT the model now comes with pre-hinged AILERONS and more hardware (no increase in price however) For .19-.35 engines.

## NEW! Lanier A-R-F SCAMP

List price \$45.95  
**HLP \$36.97**



SCAMP is a new small (50" span) pattern and sport low-winger for .25-.50 size engines.

## Here's Hobby Lobby's New 3 Channel Radio. Add up what its features are worth, then see if you believe the price!

★ ULTRA-LIGHT airborne WEIGHT: 8.5 ounces with 2 servos, and 225 mah. batteries; 6.0 ounces with 1 servo, and penoel batteries

★ Excellent SERVO RESOLUTION and CENTERING for CONTEST work

★ I.C. Servo Amplifiers with ONE-CELL-OUT flight capability

★ Smallest SERVOS made

★ A COMPLETE, ready-to-operate outfit: 3 channel Transmitter, 3 channel Receiver, 2 Servos, Airborne battery holder & switch

★ Same FAR-REACHING Transmitter power as the Hobby Lobby 5

★ Precise 2-axis Control Stick

★ Same selective and sensitive Receiver circuitry as the Hobby Lobby 5



★ PRICE: About HALF of what you'd expect to pay for a top quality 3 Channel radio

The Hobby Lobby 3 is a ready-to-operate 3 Channel Digital Proportional outfit, consisting of a 3 Channel Transmitter, a 3 Channel Receiver, 2 Servos and airborne battery holder and switch.

The Hobby Lobby 3 is manufactured for Hobby Lobby by the same company that makes the unusually reliable Hobby Lobby 5 proportional system. Many items are common to both systems: the servos. HL 3 uses the same servos as the HL 5 Series III 5th Channel system; and the optional airborne nickel-cadmium battery packs are interchangeable between both systems.

With its optional 225 mah. nickel-cadmium airborne battery pack, the Hobby Lobby 3 is one of the true ultra-lightweight systems.

The precision of the control stick-to-servo, the 3 lb pound servo thrust, the out-of-sight range, and the proven reliability record of the circuitry used in the system combine to make the HOBBY LOBBY 3 the finest 3 channel system available regardless of price.

**HOBBY LOBBY 3 \$99.00**  
3 Channel  
Digital Proportional

(27 mhz, 2 servos)  
**\$109.00**  
(72 mhz, 2 servos)

CALL (615) 834-2323

FAST C.O.D. OR CREDIT CARD SHIPMENTS.

We like telephone C.O.D. and Credit Cards. Sure, they call for a bit more paperwork on our part, but we like the feature that we can tell you what we have in stock, and we like the idea that we can generally ship out these orders on the same day you phone them in. There's no delay of waiting for your letter orders to reach us. Phone calls are quick and they're cheap - so call us!

# HOBBY LOBBY INTERNATIONAL

Route 3, Franklin Pike Circle, Brentwood, Tennessee 37027 - 615/834-2323  
DROP YOUR ORDER IN THE MAIL BOX. THEN JUMP BACK BECAUSE WE SHIP FAST!  
WE PAY POSTAGE (in U.S.) on all orders accompanied by check or money order.  
Satisfaction guaranteed or money refunded.  
Phone 615/834-2323 Store Hours: 9 a.m. - 5 p.m. except Sundays.



# Torrey Pines Triathlon

What better place to have a contest than at a vacation resort?

by Paul Denson



Everyone, it seems, likes to go away for a weekend contest. So they do, except for the guys and gals in the sponsoring club. What do the home club wives say about the Saturday night banquet? "Do we have to eat there again?" To forestall this complaint, it was decided to hold a contest away from everybody's home town, and give the campers a chance to show off their latest rigs—whether they be tent, camper, RV, trailer or just a sleeping bag under the stars.

The contest site was located quite by accident on a visit to friends. A long, flat field was discovered just adjacent to their KOA Campground, south of Hemet, California. The prevailing wind blew down the length of the field, and use permission was granted. The site is located in a small valley just about equidistant from Los Angeles and San Diego. To the east can be seen the snow-covered tops of the San Jacinto moun-



(1) The first prize was this elegant pair of free flying gulls—a creative and worthwhile award. (2) A touch of class—Ted Davis' leopard skin Snoopy dustcover. (3) Thirsting for thermals, long-winged things emerge from the sagebrush and bask in the sun in the ready area. (4) Part of what the weekend was all about was an escape with the family. The resort area offered an ideal site for mobile camping. (5) Fliers in line for the open winches—a no-hassle way to get all the flights in. Notice the significant absence of a long queue. (6) Maybe there's something about being 1973 LSF Champion that leads to complacency. Buck Faure casually launches his Presbyterian, Rod Smith acts as winchmaster. (7) Dave Shadel (white cap) and Buck Faure look over their scores. Dave's grin indicates the outcome: "I gotcha!"



## RESULTS

| Place | Name         | Points |
|-------|--------------|--------|
| 1     | Dave Shadel  | 5142   |
| 2     | Rick Norwood | 5039   |
| 3     | Kelly Pike   | 4966   |
| 4     | Buck Faure   | 4837   |
| 5     | Rod Smith    | 4804   |
| 6     | Rick Pierson | 4756   |
| 7     | Jim Haldy    | 4737   |
| 8     | Hans Langer  | 4548   |
| 9     | Craig Hanson | 4516   |

| Duration     | Precision Time |
|--------------|----------------|
| 1 Buck Faure | 1 Rick Norwood |
| 2 Rod Smith  | 2 Mike Fox     |
| 3 Mike Fox   | 3 Dave Shadel  |

## Precision Landing

|               |
|---------------|
| 1 Dave Shadel |
| 2 Jim Haldy   |
| 3 Hobie Alter |

tains behind Palm Springs and, to the south, the dome of the 200-inch Mount Palomar telescope glints in the sunlight.

Friday afternoon, campers, RVs and trailers loaded with wives, kids and gliders began to arrive. The first person to step on that beautiful flat field discovered the horrible truth. The owner of the field, knowing how destructive

(Continued on page 80)



# For the fun of it...

...if that is why you build and fly model airplanes, **Sport Modeler** magazine is for you. It's a brand-new magazine for the sport modeler and Sunday flier. Edited by Bill Winter, it contains top-draw plans for RC, CL, and FF designs that are great to build and a pleasure to fly. Each issue is written to help your modeling to be easier, more original, more interesting—and more fun. It is packed with how-to-do-it's, techniques, new and unique features, cut-away drawings in the grand manner. The finest designers, writers, artists and innovative minds in the land tell you what you need to know—and then some. Stops just short of the ultra-complex—may even show the competition flier a thing or two! **SM's** the friendly magazine. Try it—you'll like it.

**COMPLETE AND MAIL  
THE ATTACHED COUPON  
RIGHT AWAY!**

## In this issue:



Stand-off Scale? Stand-off—Stand-off? Stand-(Way)-off Scale! That's this Boeing F4B-2. Recognize it? By Paul Schaaf for REM. Flies hands-off—and stunts! Only a 15 engine!

For the man who *doesn't* have everything. That's a Dremel Moto-Shop, by the way, but even Dremel lifted their eyebrows at what we've done with it!



Warwick Bantam—CL scale of an E.A.A. home-built for 049 to 09, easy to enlarge, even go RC. Bill Blake—smorgasbord of drawings. Great lines.

**ALSO:** Fly by night!... Cutting Foam Cores—the Better Way... Bargain Basement Muffler—from shower curtain rod and bottle caps... Glenn Lee's Notes on Engines... Newman's Bench Wisdom... and many, many others.







(1) Bob Wischke's Emerald, with John Roth's plane just a little behind. (photo by Bob Brown) (2) Ralph Jackson's Cherokee (photo by Eric Meyers) (3) Kramarenko and his AN-14M (photo by Bob Brown) (4) Telford and the Lockheed P-38 (photo by Bob Brown) (5) Cliff Telford holds the trophy, while Bob Violett balances the Sopwith (photo by Eric Meyers)

# '74 AEROOLYMPICS

The '74 AerOlympics, held July 1-7 at Lakehurst Naval Air Station, New Jersey, was the first Scale World Championships ever held in the United States. The event was unique in combining the Indoor Internats with not only RC and CL Scale International com-

petition, but also Pylon Racing and Thermal Soaring. From the 133 entries who came from 17 countries, the chosen few who won are listed below. A full feature report on the AerOlympics will appear in the October issue of AAM.



(6) Jerry Mrlík (right) and Bill Boss (left) with their motorgliders. (photo by Eric Meyers) (7) Mike Reeves' Zlin Akrobat. (photo by Bill Boss)



| RC SCALE             |           |               |                   |
|----------------------|-----------|---------------|-------------------|
| Individual           | USA       | Emerald       | 2 Bucky Servantes |
| 1 Robert Wischke     | USA       | Volksplane    | 3 Karol Rybický   |
| 2 John Roth          | USA       | Cherokee 180  | Team              |
| 3 Ralph Jackson      | USA       |               | 1 Poland          |
| Team                 |           |               | 1 Telford/Violett |
| 1 USA                | 2 England | 3 France      | 2 Jim Booker      |
| CL SCALE             |           |               |                   |
| Individual           | USSR      | AN 14M        | 1 Mike Mathis     |
| 1 Valery Kramarenko  | USSR      | Lockheed P-38 | 2 Rick Lederman   |
| 2 Jerzy Osiński      | Poland    | Zlin Akrobat  | 3 Mark Smith      |
| 3 Mike Reeves        | England   |               |                   |
| Team                 |           |               |                   |
| 1 USSR               | 2 USA     | 3 Poland      |                   |
| INDOOR               |           |               |                   |
| Individual           | Poland    |               | 1 Jerry Mrlík     |
| 1 Ryszard Czechowski | Poland    |               | 2 Jeff Mrlík      |
|                      |           |               | No other entries  |
|                      |           |               | USA               |
|                      |           |               | Czechoslovakia    |
|                      |           |               | 2 USA             |
|                      |           |               | PYLON             |
|                      |           |               | USA               |
|                      |           |               | USA               |
|                      |           |               | USA               |
|                      |           |               | SOARING           |
|                      |           |               | South Africa      |
|                      |           |               | USA               |
|                      |           |               | USA               |
|                      |           |               | MOTORGLIDER       |
|                      |           |               | USA               |
|                      |           |               | USA               |



with

# CARL GOLDBERG MODELS

you'll have **FLYIN' FUN!**

THOUSANDS OF MODELERS are having fun and success with our kits. You get designs that fly smooth and stable, structures that are simple and strong. The plans illustrate every step, and answer most questions. No wonder modelers have made them the No. 1 line. See your dealer for the ship you want—and join the Flyin' Fun!



## SKYLANE 62 \$51.95

Tough, Roomy Cabin and Front End. For 1 to 4 Channel Proportional. Steerable Nose Gear. See-through cabin, with die-cut plywood cabin sides. Span 62". Weight 4½-5 Lbs. For .35 to .45 Engines.

## 1/2A SKYLANE \$12.95

For Single or 2 Channel, Pulse or Digital. Span 42". Weight 22 oz. For .049 to .10 Engines.

## SR. FALCON \$51.95

The Standard Big Trainer. For 4 Channel Proportional. Span 89". For .35 to .45 Engines.

## FALCON 56 \$27.50

The Medium-Size Trainer. Takes Single to 4 Channel Proportional. Rudder-Only or Multi-Training. Span 56". For .15-.19-.35 Engines.

## JR. FALCON \$10.95

The Small Trainer. For Single or 2 Channel, Pulse or Digital. Span 37". For .049 Engines.

## SKYLARK 58 \$31.95

Now with 1-piece, full-length sides. Takes 1 to 4 Channel Proportional. Span 58". Weight 3½-4½ lbs. For .15-.19-.35 Engines.

## JR. SKYLARK \$11.95

For Single or 2 Channel, Pulse or Digital. Span 37". Weight 18 oz. For .049 Engines.

## SHOESTRING \$42.95

The Goodyear Racer with enough Area and Stability YOU Can Fly It! For 4 Channel Proportional. Span 54". Area 540 sq. in.; Weight 4½-5 lbs. For .19-.40 Engines.

For best service, see your dealer for items you want. If not available, write direct; add 50¢ per item (\$1 outside U.S.). Minimum order \$1.

MANUFACTURERS—All our accessories are available at excellent O.E.M. bulk prices.

CARL GOLDBERG MODELS INC.  
4735W. Chicago Ave., Chicago, Ill., 60651  
I am sending 25¢ for 1 pg. illustrated  
Catalog with Basic Explanation of R/C  
Equipment and Radio Control Definitions.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State/Zip \_\_\_\_\_



All kits now include "List of Additional Parts Needed"  
ALL ITEMS AVAILABLE IN CANADA

**CARL GOLDBERG MODELS INC.**

4735 WEST CHICAGO AVE. CHICAGO, ILLINOIS 60651





## WORLD Expert Systems

Featuring all Ni-Cads, Charger, Switch harness, Servos, and new Open Gimbal Sticks.

EXPERT 5 \$329.00 ~~WAS \$100.00~~ **\$229.00**  
with 4 servos

EXPERT 7 \$369.00 ~~WAS \$120.00~~ **\$249.00**  
with 4 servos

EXPERT 7 \$399.00 ~~WAS \$133.00~~ **\$266.00**  
with 4 servos + 1 retract servo

## SPINKS ACROMASTER

\*A great flyer

54" pre-formed wing cores. 21-40 engines and 4 channel radios. Full size plans canopy and L.G. +!!!

\*Bubble Canopy

\*Foam wing cores

**Only \$32.88**

## Hobby Shack

### HEAT GUN - it's full of hot air!

This heat gun does everything a heat gun should do and more!  
Why pay more for another?

**\$14.99**



### Stick with our glue KWIK TAK

Fast drying, stronger than the wood joint, sands easily and you get 16 oz. or \$2.50 supply for only

**\$1.99**

### Real BIG Thing 7 FOOT

1,092 Sq. ft.  
.40-.60 POWER **\$54.99**

It could be the greatest trainer ever! All balsa and hardwood construction for .40 to .60 engines. Fly it with 2, 3 channels.



## SEMI-SCALE CITABRIA

SPAN: 43"  
AREA: 290 Sq.  
ENGINE: .049-.10-.15

Semi-Scale fast action sport flying with one of the best plane kit buys in America! Many satisfied modelers all across the country fly this one.



**Only \$1399**

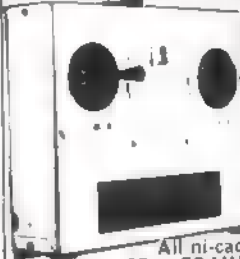
## CIRRUS

### 424 System

CHANNEL STICK  
SERVOS SYSTEM

### Super Sport

**Only \$189.00**



All ni-cads on 27 or 72 MHz.

ALMOST SORT-OF-GENUINE STAND-WAY-OFF SCALE

## REAL THING

.049-.10 POWER  
46" SPAN  
319 Sq. ft.  
TO CHANNELS

If you're not flying The Real Thing, then you must be flying something else! Don't settle for any cheap imitations!



**11.99**

## Graupner HELICOPTER BELL 212

CALL or WRITE for price!

**In Stock**

Bell 212 Float Kit..\$22.95  
Trainer Conversion..\$49.99

\*More Graupner 212 parts are in stock. Write or call!



**\$4950**

## Soarcraft

Features pre-fabricated fuselage, simplified wing construction and all flying rudder and stab. The wing attachment provides minimum drag and a breakaway safety feature utilizing nylon screws that shear on impact. Excellent thermal ability for its size and can be flown with ease in the wind even though weight is 28 oz.

## Dave Platt T-28B



Scale T-28B and .60 'Blackhead' COMBO 1 Save! **\$109.00**

## sureFLITE Volkskit

Good stable low winger, all balsa kit. A great flyer. 48" span 348 sq. ft. area .011-.10-.15 2 to 3 channels.

**\$19.99**

## CESSNA CARDINAL

and Cox .09 med. Combo!



\$41.20 VALUE! **\$28**

## GRAUPNER Kwik Fly III 3



4 channel for .60 engines. **\$46.99**

## AHM GUSHER I

ELECTRIC FUEL PUMP

Reversible flow switch reg. \$12.98

**\$8.99**

## 7 amp

WET CELL AND CHARGER

Once charged you've got a hot-plug start, for months!

**\$5.99**

## WEBRA SPEED 61RC

Schneurle FRONT ROTOR R/C

RETAIL \$147.95 **\$95.00**

## SILICONE FUEL LINE

Latest step in the progress of silicone rubber. Great!

3 feet **99¢**

## H.P. 61 R/C engine

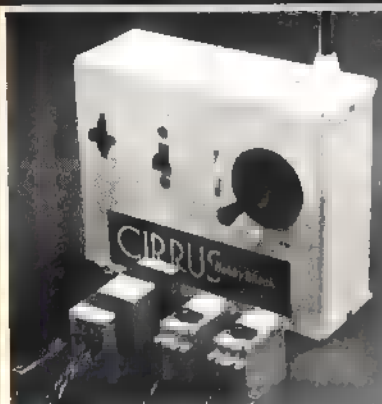
**Only \$79.99**

## FLIGHT INFORMATION WITH THE LOWEST

| AFI ASTROFLITE | OUR PRICE | GRAUPNER MODELS | OUR PRICE | COX ENGINES  | OUR PRICE | MIDWEST         | OUR PRICE |
|----------------|-----------|-----------------|-----------|--------------|-----------|-----------------|-----------|
| ASW-15         | \$44.95   | CIRRUS glider   | \$84.95   | TEE DEE .010 | \$16.00   | LITTLE STIK     | \$25.95   |
| ASW-17         | \$69.95   | CUMULUS glider  | \$175.00  | TEE DEE .049 | \$16.25   | SWEET STIK      | \$37.95   |
| MONTEREY       | \$34.95   | ASK-14          | \$175.00  | TEE DEE .061 | \$16.25   | CESSNA CARDINAL | \$24.95   |
| FOURNIER r14   | \$34.95   | HI-FLY          | \$59.95   | MED.         | \$13.50   | LIL'T GLIDER    | \$19.95   |
| MALIBU         | \$25.95   | AMIGO II        | \$39.95   | MED          | \$16.25   | CHPMUNK         | \$25.95   |



# Hobby Shack®



**CIRRUS** Hobby Shack SPORT III  
**3 Channel**  
**Radio Control**  
 1 Stick, 2 Servos, 3 Channel radio system complete ☐  
 17 mhz. **\$99.00**  
 72 mhz. **\$109.00**  
 CIRRUS SPORT III with the 3rd servo ..... \$125.00

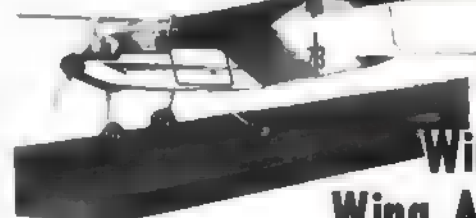
You can't but a better two or three channel system. The Cirrus label is now known across the nation for dependability and performance. Cirrus Radios have a 90 day warranty, serviced right here at the Shack.

**72"X26" ROLLS** **FLITE-KOTE**  
 Covering  
 Red, Dk. Blue, Lt. Blue, Orange, Yellow, Aqua, Black, White, and Clear.  
 EASY TO USE Retail \$7.50 roll  
**Only \$4<sup>67</sup>**  
 LOW HEAT  
 LIGHT  
 STRONG

**Authorized EK and World Engines Radio Service Center**  
 6475 Knott Ave, Buena Park, Ca. 90620 (714) 522-4921

**New New New SST\***  
**SUPER SPORT TRAINER**  
**SUPER PLANE, SUPER FUN, SUPER SPORT!**

Hobby Shack has done it again. We've with a trainer that will please everyone. It looks good, has great stability — a high-winger, excellent ground characteristics with trike gear and steerable nose gear, and it flies like a bird! It's an all balsa and hardwood kit, with plenty of hardware. A great 3 channel plane, we've put in the stock for ailerons for those of you who have them. It's a real super deal!



**Specifications**  
**Wing Span: 51"**  
**Wing Area: 500sq."**

**Radio Gear: 2, 3, or 4 Channel**  
 (ailerons optional)

Features a modified Clark Y airfoil high wing for great flying stability. Plus a steerable nose gear for the best kind of ground handling. It's all balsa plane kit with some hardwood, formed wire parts and full size plans and instructions.

**Introductory Offer**  
**\$22<sup>88</sup>**

**taipan** SCHNURERLE 'GOLDHEAD'  
**.15 TBR**  
 15TBR RC \$52.95 **\$46.99**  
 15TBR STD \$46.95 **\$41.99**

**COX** COX SUPER STUNTER  
 Do figure 8's and loops — right out of the box!  
**12<sup>80</sup>**

**VK NAVAJO**  
 SPAN 64" AREA 675  
 PROGRESSIVE AIRFOIL  
 40-58-67 ENGINES  
 RADIO 4 CHANNEL  
 Reg. \$49.95  
**\$38.88**

**WANKEL .30**  
 The new O.S. Wankel is one of the most talked about engines today. The Wankel is not only a remarkable collectors item, but also very practical for R/C model airplanes. Regularly \$87.50  
**Sale \$73.00**

Our catalog is packed end to end with modeling kits, tools, accessories, plus engines, radio systems, and supplies. It's over 100 pages long and many pages are in full color. Plus, inside are articles for the novice to help him (or her) with a few of the basics of modeling. We feel it's the best catalog in the business and suggest that you include it in your library. Ordering by mail is both fun and easy, plus we're close as your nearest mail box!

☐ I am enclosing \$2.50 (check or M.O.) for your fully illustrated modeler's catalog. Please rush it to me today.  
**MAIL THIS COUPON TO:**  
**HOBBY SHACK**  
 6475 KNOTT AVENUE  
 BUENA PARK, CALIF. 90620

**BRIDI QUIK STRIPE TAPE**  
 Choice: Red, Blue, Orange, Yellow, Black, White or Silver. Order by size and color.  
 1/16" retail \$1.98 ..... \$ 1.59  
 1/32" retail \$2.69 ..... \$ 2.19  
 1/8" retail \$2.69 ..... \$ 2.19  
 1/4" retail \$3.69 ..... \$ 2.99

**THUNDERBOLT**  
 R/C LONG GLOW PLUGS  
**6 for \$4<sup>99</sup>**

**ADVERTISED PRICES**

| AIRTRONICS              | OUR PRICE      | BRIDI ENTERPRISES     | OUR PRICE     |
|-------------------------|----------------|-----------------------|---------------|
| OLYMPIC .....           | \$49.95 .....  | RCM Basic Train ..... | \$29.95 ..... |
| GRAND ESPRIT .....      | \$129.95 ..... | RCM TRAINER .....     | \$49.95 ..... |
| QUESTOR .....           | \$34.95 .....  | RCM Trainer .40 ..... | \$42.95 ..... |
| ACRO STAR .....         | \$79.95 .....  | SUPER KAOS .40 .....  | \$44.95 ..... |
| QUESTOR POWER POD ..... | \$ 6.95 .....  | SUPER KAOS .....      | \$59.95 ..... |

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_

**POSTAGE & HANDLING INFORMATION**

|                        |        |                        |        |
|------------------------|--------|------------------------|--------|
| \$ 0.00 to \$ 5.00 add | \$ .90 | \$20.01 to \$30.00 add | \$2.50 |
| \$ 5.01 to \$ 8.00 add | \$1.00 | \$30.01 to \$50.00 add | \$2.75 |
| \$ 8.01 to \$15.00 add | \$1.20 | Order over \$50.00 add | \$3.00 |
| \$15.01 to \$20.00 add | \$1.60 |                        |        |

California residents please add the 5% State Sales Tax. All prices in this advertisement and in our catalog are subject to change without notice.





# the cockpit

A well detailed cockpit gives life to an airplane...it is the heart of any model and the focal point of a spectator's (or judge's) eye. / by Richard Uravitch

**T**o the modeler interested in trying his hand at stand-off scale or scale, the item which seems to strike the most fear into the heart is that area in which our pilot spends his time...the cockpit.

All those little knobs and gauges, the navigation equipment, black boxes, etc., are stuffed into an area of a few cubic inches. Fear not...it can be done, and is done all the time. There is no real trick or wizardry involved, just attacking the problem head on and utilizing available resources.

For our purposes, we'll talk about two types of cockpit detailing: sport (or stand-off) scale, and absolute scale. Now, some of you are probably saying, why detail a cockpit for stand-off scale when the model is judged from outside a ten-foot circle? Good point. Except, watch the judges at the next stand-off contest. There is a certain charisma to an airplane that looks like a real airplane; and a cockpit representation, in most cases, will influence the judges more than an open box with a bust of a pilot sitting in it.

For sport scale or full-scale, the first step in preparation will be the collection of as many photographs of the cockpit you are modeling as possible. All angles, all sizes. Study them!

When you get to the point where a picture of a drag chute handle or parking brake release looks like a T-pin, prop and mixture controls resemble glass-headed straight pins, and control sticks look like that leftover piece of brass tubing you've got, the battle is half over!

Source material (drawings and photographs) is virtually everywhere, but some of the *Profile*, *Aircam*, and other publications will put you in good shape. Instrument faces are now readily available commercially from sources such as IM (World Engines, Inc.) Tatone, and JP Products to name a few. Some are supplied with scale instrument cases or bezels, some not. Those with bezels eliminate much additional work. That leftover plastic car kit becomes very useful. You know, the one you started when you were "giving up the hobby!" They provide lots of little useful items which can be used either intact or modified to suit your needs.



Can you imagine what this view of the author's P-51 would present if the cockpit were a mere painted slab of balsa? Cockpits represent character (both the plane's and the builder's).



The instrument panel features commercially available dials and bezels, plus a bit of creative junk-box scrounging.



Attention to weathering keeps this most human part of the plane from looking sterile. One feels that a pilot scrambled over this seat, and sweated on this stick.

When starting actual construction of the cockpit, I prefer the "box method" or component approach. (See Fig. 1.) In essence, you will be constructing a model *within* a model. This is much easier, since it gives you something you can work on at your workbench, rather than waving that three-foot fuselage around the room.

The first step in construction should be to approximate the area in the fuse-

lage that will encompass the cockpit unit. Measure it off and transfer the dimensions to a sheet material. Heavy card stock is alright, balsa is better (but will require filling the grain). Thin plastic seems to be the best.

Now, make up the "box" by tacking the four sides together. Tack-cementing will make it much easier to disassemble and work on, especially when fitting side consoles. The bottom



may be added later. Fit the box inside the fuselage and mark its location on the fuselage sides.

Referring to your collection of photographs, break down the cockpit "box" into its individual parts: the instrument panel, left and right sides, floor and back. (See Fig. 2.) Work on each piece separately, fitting the consoles, black boxes, NAV/COM equipment panels and throttle quadrant to the sides first. Balsa blocks work very well for the basic console units because they may be shaped more easily than most materials.

Unless you are constructing an exact scale cockpit, stick to basic shapes for your detailing. A simple, functional-looking cockpit builds up quickly, and starts to come to life with the inclusion of random parts you may have lying around.

You will find card stock (thin) invaluable for raised portions of instrument panels, warning placards, and other areas comprised of various shaped panels. Straight pins (common head) will serve nicely as toggle switches, glass-headed pins make ideal prop and mixture controls, short sections of 1/16th square balsa are readily shaped into switch guards. Warning lights can be either a pin head, or a tiny drop of the appropriate color paint.



Good source material is usually available from quality hobby shops. These references are the road maps to guide you to an authentic model.

One word of caution... paint the interior of the basic box *before* adding lights, instruments, toggles, and any other accoutrements, or you'll end up painting everything over again! Interior colors vary with the subject being modeled but, as a general rule of thumb, military cockpits are either zinc chromate, dark gray (almost black) or green/gray. Individual components, such as the seat and radio equipment, may vary, but you're reasonably safe with the colors mentioned. Cockpit interior colors are shown in the chart below.

| MILITARY       | COLOR                            | SOURCE                       |
|----------------|----------------------------------|------------------------------|
| U.S. (WWII)    | Zinc Chromate                    | Pacra M16 Chrome Green       |
|                | Black/Gray                       | Pacra M1 Scale Black         |
| British (WWII) | Zinc Chromate                    | Pacra M16 (acceptable)       |
|                | Black/Gray                       | Pacra M1 Scale Black         |
| Luftwaffe      | Gray/Green                       | Humbrol Sky type "S"         |
|                |                                  | "R" Sky type "S"             |
|                | Black/Gray                       | Pacra M1 Scale Black         |
| Japanese       | Bare Aluminum                    | Aero-Gloss Silvalac Aluminum |
|                | Bare Wood                        | Pacra Flat Earth M20         |
|                |                                  | Lt. Earth M18                |
|                | Metallic Blue                    | Tastors Pla Metallic Blue    |
|                |                                  | (Not Metalflake)             |
| Civilian       | Per source material              |                              |
|                | (Model must match documentation) |                              |

(Continued on page 82)

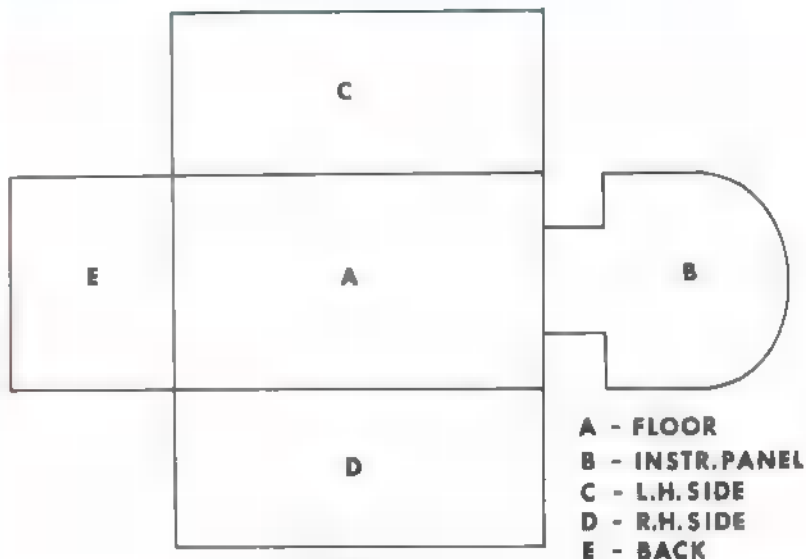


FIG. 1

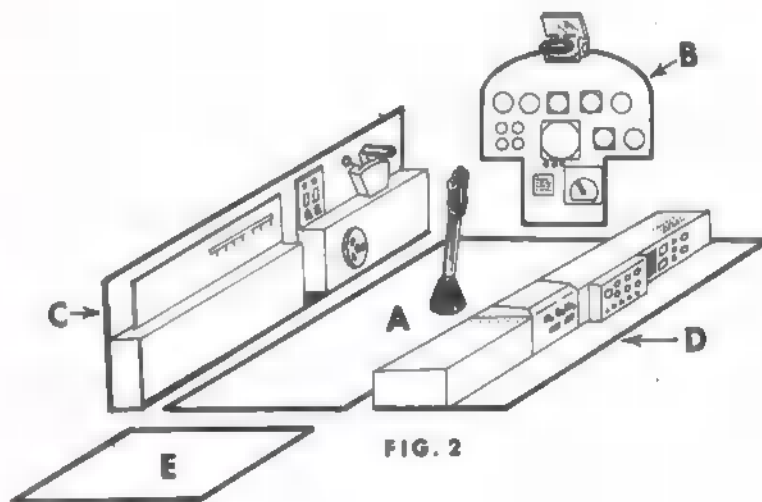


FIG. 2

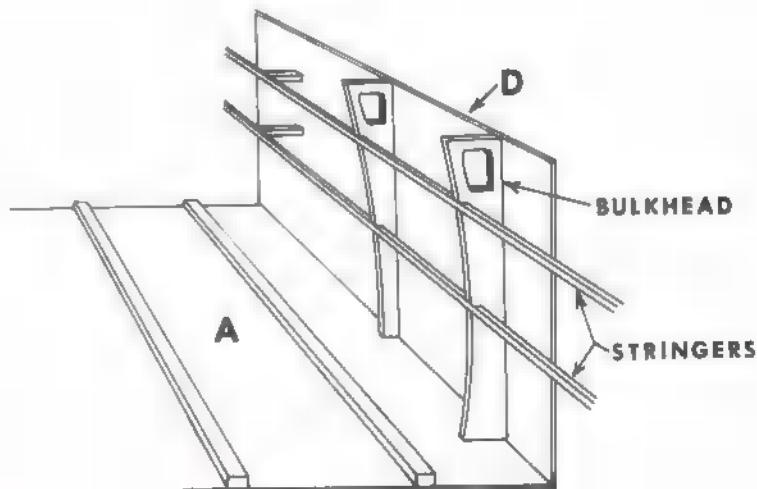


FIG. 3





Lepere, except for two prototypes, — built by the Packard Motor Company of Detroit. The official designation L.U.S.A.C. 11 stood for Lepere/U.S. Army/Combat of the eleventh type considered.

# A La Recherche Du Lepere

Built specifically for the still-developing Liberty engine, this two-seat airplane was of striking appearance, strong and maneuverable. /by Patricia T. Groves

**T**he young American shivered inside his heavy flying coat. In the pre-dawn darkness of Monday, December 18, 1918, France's Orly Field lay shrouded in a bleak, wintery overcast. And icy fingers of cold, wet air, played a fiendish game of Wake Up around his up-turned collar. Lt. Clifton C. Cottrell shivered off the chilly intrusion while he stood and waited.

Across Orly's wide and silent field, distant hangars fused into the darker darks of a dark and silent night. Yet, just a few miles from where he stood, Parisians were at this moment still wildly celebrating Armistice. Armistice! Armistice! Three weeks old today. Happy birthday, dear Armistice. It's over, "over there?"

Tonelessly whistling through his teeth, Clifton C. Cottrell, 2nd Lt., USAS, 24th Aero Squadron, 1st Day Observation Group, First Army, jammed his hands deeper into his pockets and scuffed at the hard-packed earth outside a weathered operations shack: *Where the devil are they? Mitchell will eat us alive if we're not there on time.*

Mitchell was William Mitchell, "pilot's pilot," Brigadier General and feisty proponent of strategic air power. It was his call to the CO of the 24th that brought Cottrell and five others from Vaincourt to Paris.

The outspoken General wanted a group of combat-experienced pilots to evaluate a new machine. An American

bi-place fighter. The Lepere. There was a big bruhaha going on about America's participation in the War, about American-built airplanes, American-built engines and, well, our reputation was pretty rumbled. Mitchell was not happy.

Personally as well as professionally aggressive, General Mitchell wasn't ex-

(Continued on page 20)



Novel inter-strut bracing gave strength, yet didn't interfere with streamlining.



In full military colors, L.U.S.A.C.-11 stands ready for aerial action. An exceptional rendition of this unusual airplane.

# LEPERE L.U.S.A.C.-11

Built specifically for scale contest work, this two-seat airplane is of striking appearance, strong and maneuverable. /by Floyd E. Carter

Unlike many WWI aircraft, the Lepere L.U.S.A.C.-11 is ideally proportioned for RC model use. The long nose moment, and large tail surfaces, help contribute to a stable and easily flyable model. An abundance of scale detail items make it particularly attractive for AMA or FAI Scale competition. At a scale of 2"-1", the 1580 sq. inch wing and 10 lb. flying weight produce a wing loading of a scant 14½ oz./sq. foot. Plenty of control surface all around, including four ailerons, assures good maneuverability at low speeds.

Photos of the Lepere were obtained from the Smithsonian Institution, while other sources produced a detailed cockpit photo. Working drawings for the model were scaled up from available data gleaned out of several publications.

## CONSTRUCTION

Most construction articles begin by telling you to start with the wings, or some other part. I will begin by telling you not to build anything!—until you have assembled all the photos, scale three-views, etc. Don't get yourself

trapped with a finished model and no documentation.

The sheet metal forming is a real challenge, so it might be fun to start there, as a test of your nerves and stamina. Once the technique has been mastered, metal forming can be a valuable part of your arsenal of construction tricks.

The best metal-forming procedure is to first make a male mold from pine or other soft wood. Next, cast a female mold, using a low-temperature alloy. Cerro Bend has a melting point of 158°F., and is quite strong when cast. If not obtainable from local sources, contact Cerro Copper & Brass Co., Alloy Department, Rolling Place, Stamford, Conn. 06907.

After melting the alloy in a pan placed in boiling water, pour the casting. If trapped air bubbles cause imper-

fections, just re-melt and try again. There should be a flat edge around the outside of the mold, for attaching the flat sheet of material to be drawn.

When stretched into the mold, some parts of the material become quite thin, so it is good to start with thick stock. T-O temper aluminum is ideal, but harder alloys can be annealed by placing them in a 500°F. oven for an hour, and cooling slowly. Attach the aluminum sheet to the mold with screws spaced about one inch apart.

Now the creative part begins. Use a vibrator type sander, to which is attached a hardwood mandrel that has been carved to a blunt-nose shape. This makes a nice hammer that strikes the aluminum sheet 60 times each second. Work the sheet slowly into the form with a circular motion, until it contacts

(Continued on page 21)

## LEPERE COLOR SWATCHES—AEROGLOSS PAINTS



OLIVE  
DRAB



CAMOUFLAGE  
TAN



FOKKER  
RED

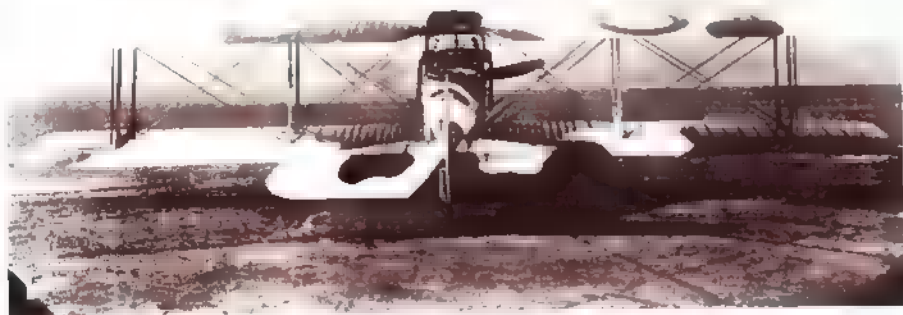


CURTIS  
BLUE

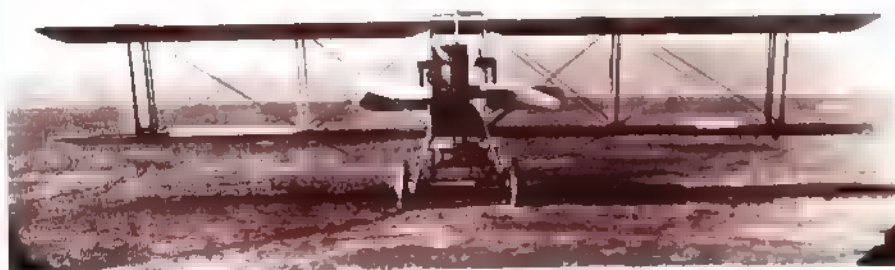


SWIFT  
WHITE





Piebald camouflage pattern shows up well on this McCook Field Lepere.



With a 425 hp Liberty 12A engine, this Lepere was photographed at McCook Field, in late 1918. Rushed to production, the Liberty engine would be little endeared for many years.

(Continued from page 18)

actly GHQ's fair-haired boy. But, in September 1918, he'd amassed the largest air armada ever, and helped the U.S. First Army wipe out the St. Mihiel salient. And, the following month, his command over huge air formations, engaged in mass bombing enemy targets, helped break the back of the dreadful Meuse-Argonne campaign.

But, between the political situation within the A.E.F. General Staff and the stand-offishness of the Allies, Mitchell hardly had a chance to prove out his theories. So "Billy" was in a real lather to get the Lepere accepted and up to

The Front. Oh, it was still The Front, all right, even though it was quiet now.

Ever since his arrival in France, Lt. Cottrell's duties had been split between days at the Front and days back at Colombey-les-Belles, where he tested rebuilt or newly assembled aircraft for the First Air Depot.

A smile crossed his young face. He'd gotten the job, the CO barked, "...not because you're a sensational pilot, Cottrell! Just—sensitive." True, experience and seat-of-the-pants flying do make one sensitive.

The last 50 days of the war had been intense. (Was it really over?) The General's call, last week, meant a weekend

in Paris for six of them. And they all could use the leave. But Cottrell would have been just as happy had the CO put somebody else in charge of the expedition.

"Bill, are you awake? What time is it? Where are those guys?"

Lt. William J. Daniell yawned in the shadows: "Quit worrying, Cliff. They'll get here. After all, liberating Paris in one weekend isn't easy, you know."

Wishing he had Daniell's confidence, Cottrell stood and listened to the dark until, gradually, he became aware of the gasps of a definitely pre-war engine in the vicinity. A veteran French taxi sputtered and coughed to a halt beside the waiting airman. Happily, all of Cottrell's anguish vanished at the sight of the four tardy pilots. No military police in escort. No hysterical young ladies. And, best of all, no irate Frenchmen *avec* shotgun.

"Mother was worried," Daniell teased.

All of them barely into their twenties, all of them three weeks out of the killing—six pilots—hurried towards a waiting hangar and an unknown airplane.

When the Liberty fired up on all 12, its roar certainly got your attention.

In the previous hour, a technician had walked the pilots through the procedures of the test. And, while they checked over the airplane, he patiently responded to their questions, and recorded their comments.

Though the pilots of the 24th were a little disquieted to see single-strand elevator control wires, everyone allowed as how that could be changed easily enough. That—and the guidas. The control wires slid through metal guides, and already there was noticeable wear in the area. Horsehide would be safer.

And they weren't too happy about the placement of the radiator, nor the pipe leading to the motor. With that location, in combat, a direct hit would drench both pilot and observer in boiling water. An unpleasant prospect.

But they weren't going to get shot at today. And, all in all, the Lepere appeared to be a stout, sturdy airplane. Construction and materials—all O.K. There were no qualms about taking it up.

"You first, Cottrell."

The sky was a cheerless grey and, except for the Lepere's bright red, white and blue tail, there was little color anywhere as Cottrell slipped his 5'8" frame into the cockpit. When his feet found the rudder bar sooner than expected, he cocked his head over for a look-see. Gee, that's awfully close.

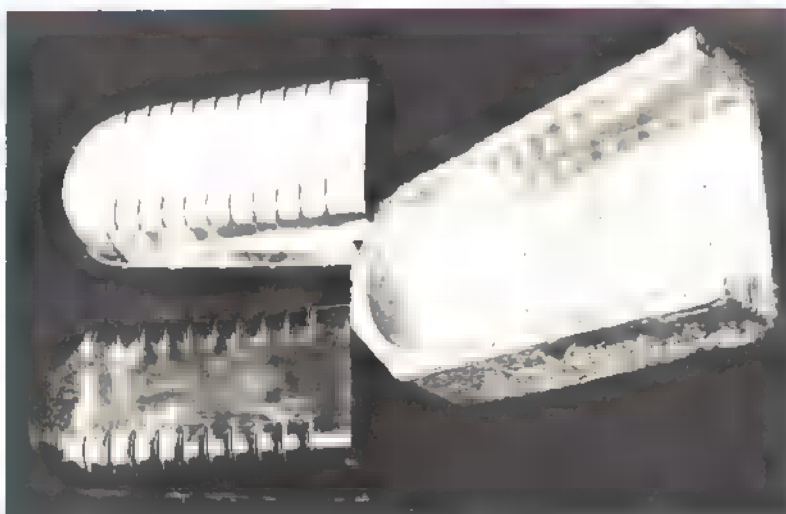
Minutes later, while 400 horses idled at a frisky rumble, he took a quick trip through the controls. O.K. Nothing seems to bind. And while needles bounced on the unfamiliar panel, Cottrell ran up the engine. Notched throttle—doesn't particularly thrill me.

Then, bumping over the rough turf towards the end of the strip, he turned the Lepere into the prevailing breeze,

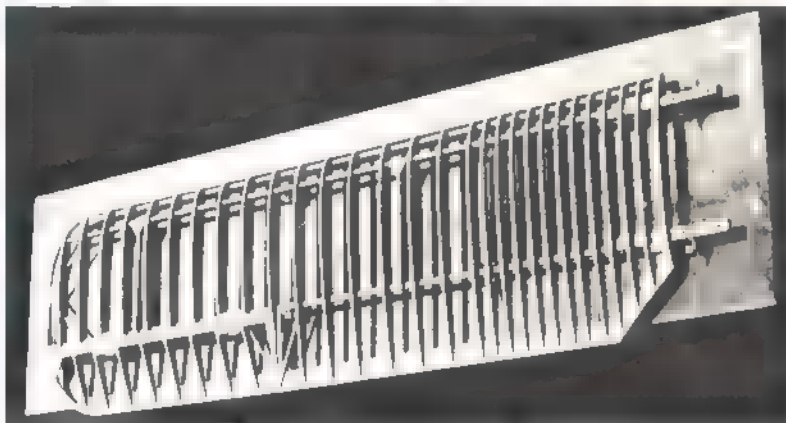
(Continued on page 74)

If you can't decide whether to build a WWI or Between The Wars Lepere, how about building this civilian variant—the Waterman (L.C. Brand) Lepere.





ABOVE: To produce the authentic metal cowl, Cerro Bend is used for a hard, low temperature mold. RIGHT: External elevator and rudder control systems achieve scale appearance.



ABOVE: The complete left upper wing structure on its building jig. RIGHT: The fiberglass turtledeck, as installed on the top of the fuselage.



(Continued from page 19)

the mold. Use mandrels, made from dowels, to shape the smaller recesses. Remove the shaped piece, sand and polish.

The cowling is easier to form in two parts—the front "nose" piece, and the remaining top piece. After forming the exhaust stacks, rivet each one to a flat backing sheet. Make the individual exhaust headers from tubing and epoxy to holes drilled in the backing plate. The side louvers are all interchangeable, except for the tapered front louvers.

With the metal parts completed, we can get back to the more familiar balsa construction. The fuselage box is conventional, and should lift your spirits after all the metal work. When the fuselage sides and formers are in place, epoxy the cabane struts to the inside of the fuselage sides (checking for incidence). Face these, on the outside, with balsa to bring the struts flush with the outside of the fuselage.

The fiberglass turtledeck is made in the usual manner with a pine plug and a plaster of paris female mold. After a gel coat, lay up three layers of medium weight fiberglass at the front. Around

the gunner's cockpit, and aft, use two layers to avoid excess weight at the tail.

Begin landing gear construction by fastening the wire to plywood formers. Epoxy the inner plywood face to the wire. Next, fill in around the wire with more plywood and, finally, add the outer face. The spreader bar is made from pine, and grooved to accept the axle housing.

The important thing about the axle/wheel assembly is that both wheels are soldered to the wire axle. This prevents the wheels from turning independently, and allows straight takeoff runs with no tendency for ground looping. This is the secret for building tail draggers that have a through axle. The axle turns in a brass tubing sleeve, which has a bungee hanger soldered at each end. The bungee system is authentic and effective.

The rudder and elevator are controlled by cables. Since the elevator halves are not joined, two cables must exit the fuselage side for each elevator horn. Attach the cables to bellcranks mounted on the rear of F4. From the cranks, conventional Nyrods connect to the servos. Servo access is through a bottom hatch.

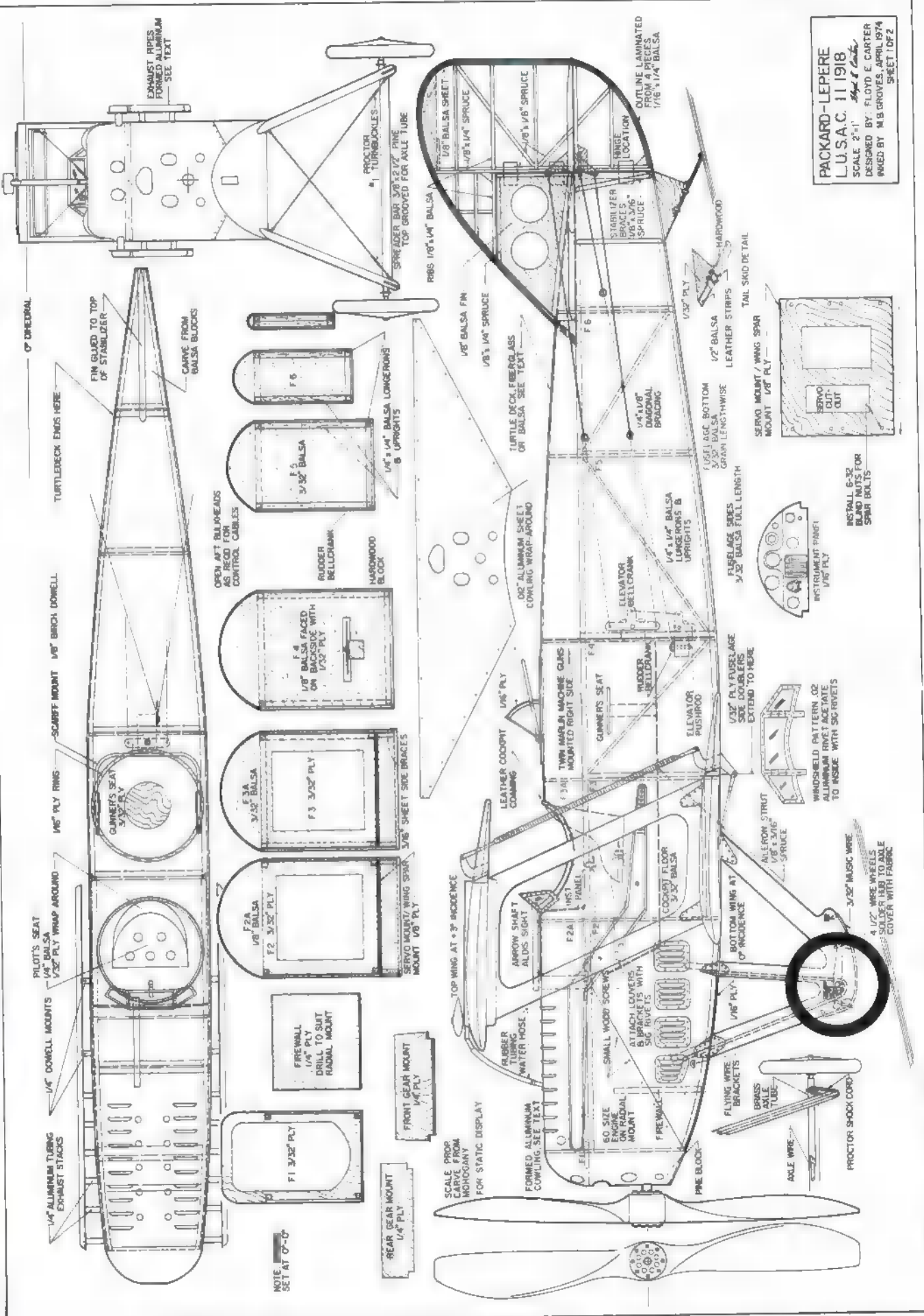
There is a shortage of cooling air around the engine, which results from building an RC version of a water-cooled airplane. The Lepere had some small holes in the cowling front, which were enlarged slightly on the model. A cylinder head heat-sink was used, which allows the engine heat to be conducted away to a larger surface area and, thus, dissipated more efficiently. Even so, engine overheating can be a problem with this model.

One discouraging feature of biplane construction is the tedious job of making ribs. The sandwich method is the quickest, and most accurate method. Make two identical metal rib patterns, and sandwich eight to 12 pieces of wood between them. Clamp this sandwich in a vise, and sand the pieces down until metal is reached on both sides. While the sandwich is still clamped together, make the rectangular spar holes with a long, slender file.

The plans show only one of the four wing panels, because the wing is built on a wing jig instead of over the plans. You can make a satisfactory wing jig by glu-

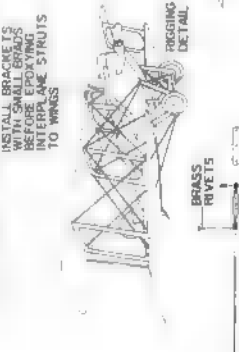
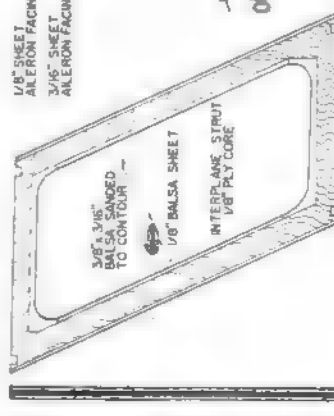
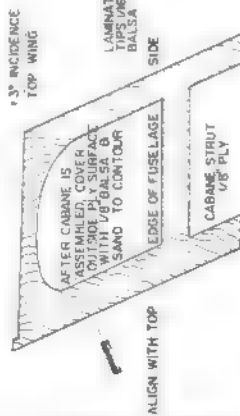
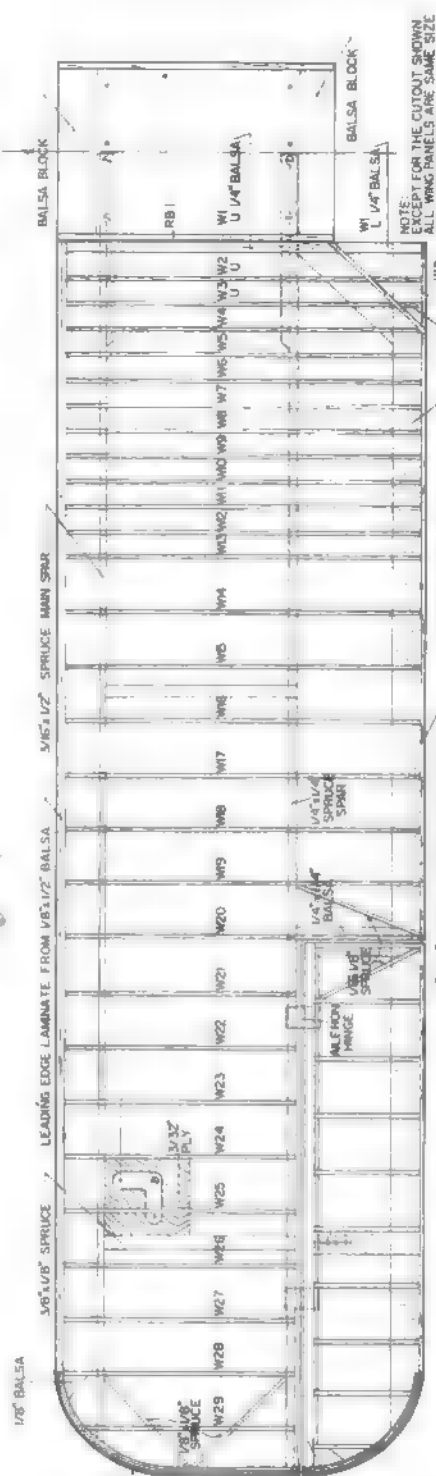
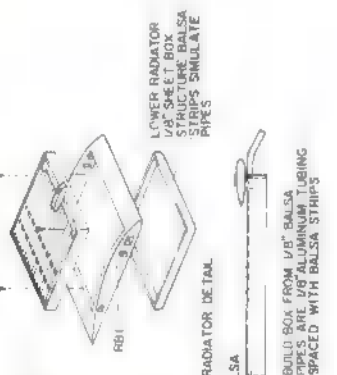
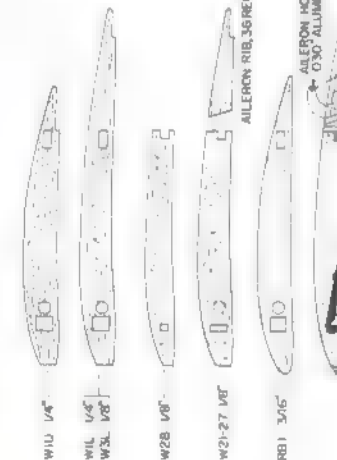
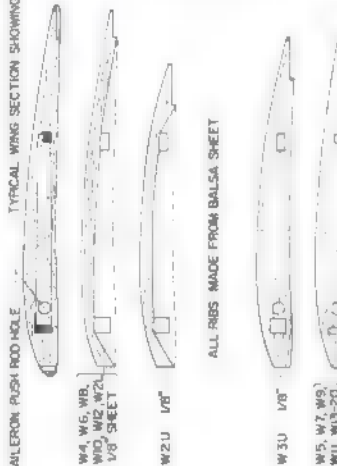
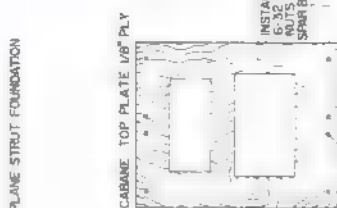
(Continued on page 72)





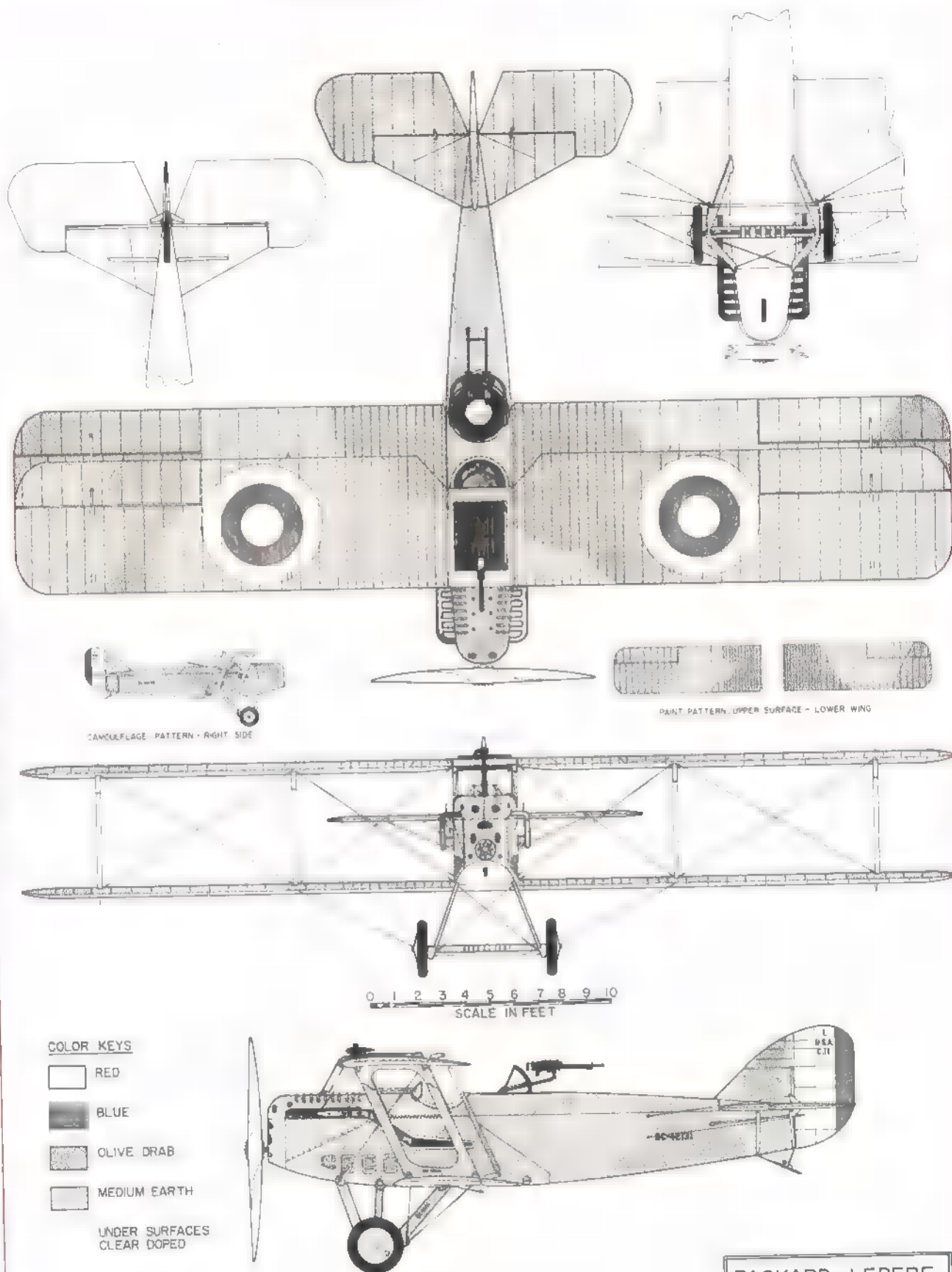
PACKARD-LEPERE  
 U.S.A.C. 111918  
 SCALE 2"=1' *Step 1 of 2*  
 DESIGNED BY: FLOYD E. CARTER  
 BUILT BY: M.B. GROVES, APRIL 1974  
 SHEET 1 OF 2

ALTERNATE RIB HOLES - TYPICAL WING SECTION SHOWING INTERPLANE STRUT FOUNDATION



PACKARD LEFERE  
SHEET 2 OF 2





PACKARD-LEPERE  
L.U.S.A.C. 11 1918  
400 hp LIBERTY 12-M.B. Groves

1 APRIL 1974

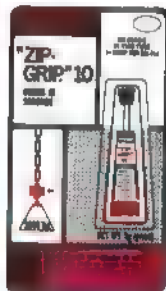
**Devcon® "Dev-Tube"™**  
**"5-Minute"® Epoxy in the**  
**Revolutionary new ■ in 1 dispenser.**

With this unique "2 in 1" dispenser you simply snip off the double nozzle and push out equal parts of epoxy and hardener — automatically. Just mix and apply. When finished, close both nozzles for future use with special cap. Devcon "5-Minute"® Epoxy is now available in the "Dev-Tube" dispenser. "5-Minute" is famous for super fast repairs — even in thin films and low temperatures.

R-208

|       |      |        |
|-------|------|--------|
| R-208 | 1 oz | \$1.70 |
|-------|------|--------|

**DEVCON® "Zip-Grip"® 10**  
Fantastic bonding strength. One square inch of "Zip-Grip" 10 will support 5,000 lbs.



Bonds Steel, Aluminum, Brass, Copper, Glass, Rubber, and most Plastics to themselves or each other. Sets in seconds. Most items can be handled in 1 or 2 minutes. Very thin films work best. One small drop or less per square inch.

R-290 2 grams \$2.00-

**Devcon® "5-Minute"® Epoxy**  
For super-fast repairs.



First epoxy material to provide all physical strengths of epoxy adhesives **plus** quick setting, even in thin films and at low temperatures. Use it to build and repair RC models.

|       |          |       |
|-------|----------|-------|
| R-205 | 1 oz     | 51.35 |
| R-206 | 2 1/2 oz | 2.50  |

MAIL ORDERS F.O.B. FACTORY

**MADE FOR LONG  
LASTING SERVICE**

ROUGH PROPS RUIN PLANES AND RADIOS  
ELIMINATE THE PROBLEM  
WITH THIS FINE TOOL

SHOWS BALANCE ON LONG AND SIDE AXIS  
EXCLUSIVE FEATURES

KNURLED  
PROP HUB  
CONE PIECE

PRECISION GROUND  
STEEL BALANCE PIN  
— KNURLED  
— BASE CAP

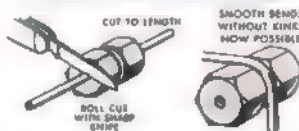
## LIGHTWEIGHT CONTAINER CASE

**DU-BRO PB-295  
PROP BALANCER**

**PB-295 ONLY \$2<sup>95</sup>**

FITS ALL PROP SIZES  
BORED FOR 1/4" SHAFTS

**DU-BRO KWIK-BEND**  
KE-125 FOR EIGHTH INCH TUBING



7/8" x 1 1/8" SOLID BRASS, LIFETIME MODEL  
BENDING IN BRASS  
SIMPLE OPERATION. CAN  
BE WITH THE FINGERS CLAMPED  
IN A VISE.


**HL-124 ONLY \$1.24**

## DU-BRO BRAKE



**2 EACH**  
**RIGGING**  
**COUPLERS**



FOR  LINKS  
THREAD SIZE  
2.56: 1/32 EYE

Catalog No. AC-30



**DU-BRO  
NYLON KWIK-LINK**

THESE "SURE-LOCK"  
CLEVISES ARE THE SAME  
AS THE STEEL "THREADED  
CLEVIS." THE NYLON  
KWIIR-LINKS ARE MADE FOR SELF  
THREADING ONTO JU-BRO RODS  
AND "THREADED COUPLERS" OR ANY  
OTHER HAVING 256

Newly styled, hand inspected,  
top quality tires with treads.

REGULAR

# DU-BRO WHEELS

|      |               |         |
|------|---------------|---------|
| NH-1 | WHEELS 2 1/4" | 2.59/pr |
| NH-2 | WHEELS 2 1/2" | 2.79/pr |
| NH-3 | WHEELS 2 3/4" | 2.99/pr |
| NH-4 | WHEELS 3"     | 3.19/pr |
| NH-5 | WHEELS 3 1/4" | 3.39/pr |
| NH-6 | WHEELS 3 1/2" | 3.59/pr |

**TREAD**  
**OR**  
Du-Bro smooth surface tires  
available!

**MADE IN U.S.A.**

### Low Bounce "SLICKS"

|      |               |         |
|------|---------------|---------|
| 225S | WHEELS 2 1/4" | 2.59/pr |
| 250S | WHEELS 2 1/4" | 2.79/pr |
| 275S | WHEELS 2 3/4" | 2.99/pr |
| 300S | WHEELS 3"     | 3.19/pr |

COMPLETE LEAK GUARANTEE AND LUBRICATION PROGRAM AVAILABLE FOR ALL MC BRID WHEELS

**DU-BRO PRODUCTS, Inc.**  
489 Bonner Road, Wauconda, Illinois 60084

PRICES AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



# AEROSPORT

**T**he Aerosport is an easy construction and handle plane of simple construction with realistic appearance. It was designed as a sport plane which could also be used as a trainer.

Two main engines and dual fuel system operation were of need in some instances, and a plane which would fly at a moderate speed would be ideal to use for this type of aircraft.

With these considerations in mind, I decided on a two-engine plane for its stability, and

engine for use in making turns. It is generally thought that multi-engine planes are not very sensitive to ailerons; however, this problem is not evident in this case.

The design is shown as built. It is a two-engine plane with the ailerons for turn in construction. It is a two-engine plane with a smooth front end and a valid reason for the beginner to consider making the first step towards with ailerons.

The original has been flown many times by beginners and experts, and all like the way it flies.

(Continued on next page)



The first designs an RC neophyte selects are the most critical planes he will build, for they ■ the foundation of his flying future. The AeroSport is designed with this in mind. / by William E. Patterson

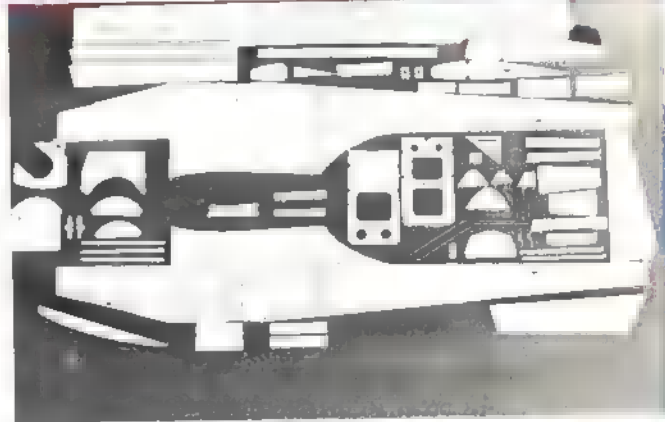






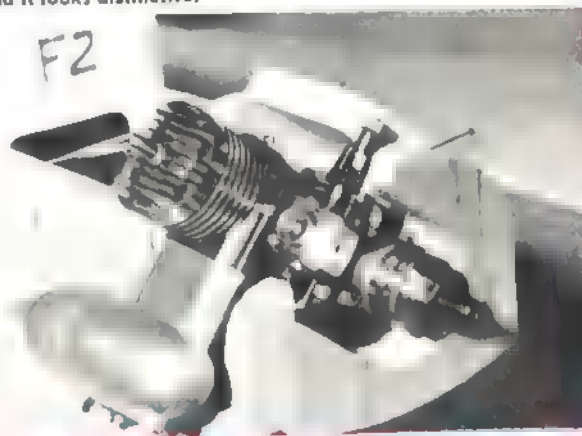
The utilitarian lines make for a beefy structure, roomy access to installation areas, and uncomplicated construction. The wing and tail are designed to deploy upon impact, thus minimizing repairs.

Use weights to hold the fuse sides in place while checking alignment, not the large size of the model itself.



With both sides of the fuselage completed, and the rest of the parts cut out, a building project like the AeroSport is the same as finishing a kit.

Rough shape the nose blocks, then test fit the engine before finalizing the nose contours. The 45° mount eliminates muffler location problems—and it looks distinctive.



It's a real fun airplane, and should make an ideal building project.

The AeroSport offers many advantages for one's first RC model. Its large size makes visibility something that can work in your favor—beginners tend to fly too high and far away, as a rule. The engine displacement used (45-60) can save the newcomer \$20-40 over trainers requiring smaller power plants. Our kit and plan market is disproportionately favorable to the larger engines, so investing in the inevitable, right off the bat, makes sense. And let's not forget that big airplanes handle wind gusts well. Penetration and smooth flying can do a lot to ease the tensions of those first flights. You'll get more practice, while lighter craft are grounded by the wind.

The clean exterior lines of this ship have been accomplished by replacing the customary rubber band wing hold-down with two 10-32 nylon screws. Although they may appear to be undersized, they are strong enough for all in-the-air maneuvers, but will shear off during those sudden stops.

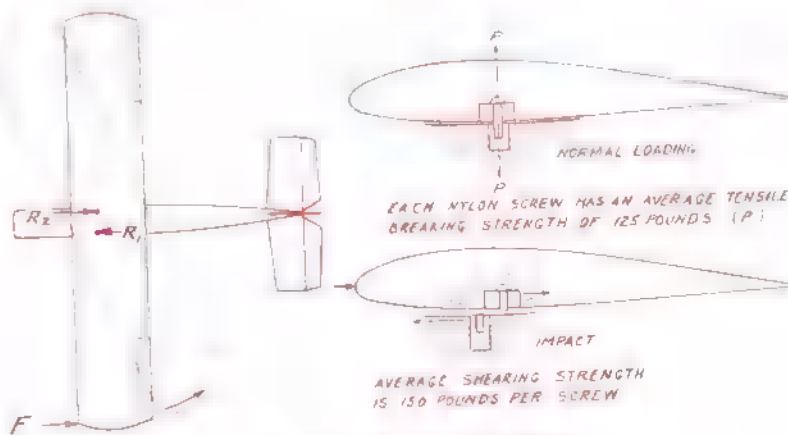
Another unique design feature is a spring-mounted tail section, which will flex enough on bad landings to keep from breaking off. This system uses two internal extension springs obtainable by mail order, at \$.50 each, from: The Penn Valley Hobby Center, 837 W. Main Street, Lansdale, Pa. 19446.

A newly designed plane generally offers a few surprises on its first flight.

This one certainly did. Gross pilot error resulted in insufficient flying speed, and stalled out shortly after takeoff. While not planned test, it proved that the nylon wing screws would shear off. Other than a bent landing gear and some mud in the carburetor, everything was okay. It was successfully flown the same

day. During the many flights that have followed, it has been looped, rolled, spun, and flown inverted; and, it handles beautifully.

The original model weighs 5½ lb. and uses the older GD 47 Heath Kit proportional system. It has a 62" span; fuse is 47½" overall. Power is a muffled En-





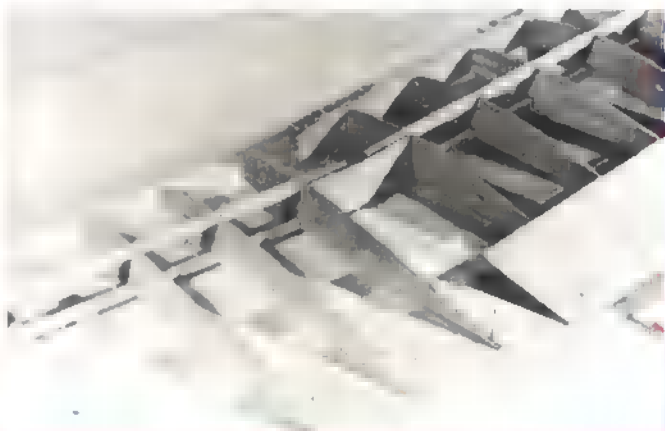
It doesn't take too much time to get the fuselage to this finalized stage. Let the sandpaper achieve those nicely rounded corners.

Typical radio installation. Beginners should ■ special attention to the placement and proper mounting of that new radio. Keep the pushrods straight and free of binds.



The tank access hatch is rubber band retained. Note that the center line of the tank is ■ the ■ reference line as the center of the carburetor—this is important.

While the trailing edge is pinned to the building board (which is straight, of course), the spar is elevated with shims.



ya 45, which is plenty of power to get off the ground. The model can be flown easily at half throttle.

### CONSTRUCTION

There is always a challenge in starting ■ building project. You look ahead, knowing that when you are finished, your ship will be different than the kit jobs out at the field. So you start by lifting the information from the plans and cutting out the many pieces. When enough parts are accumulated, start building and you'll find that it is very much the same as putting a kit together.

These plans have been made to give the builder plenty of good working information. Although this ship ■ easily built, there are a few tricks in making it go together smoothly. I'll try covering the more difficult points in the text, and I'm sure the plans will explain the remaining details.

**Fuselage:** Start by cutting the plywood doublers from a sheet of 1/32 ■ 12 x 24" aircraft plywood. Then build the sides, as shown by the illustrations on the plans. Use regular model cement or epoxy, and keep the pieces weighted down to your building surface until thoroughly dry.

Following this, cut out the side profiles, except for the wing contour. Mark the side sheets for support pieces and longerons and cement them in place.

The 3/16" square balsa at both sides of F2 and F3 should be cemented in, ■

that formers F2 and F3 may later be slipped into place. The wing contour reinforcement, F8, must now be located so that it keys into the notches of both F2 and F3, assuring accurate alignment with both fuselage side sheets. With F8 now cemented in place, the wing contour may be cut in both side sheets.

With the fuselage sides and formers prepared, the next step is to put the cabin area together, by first fitting, then cementing F2 and F3, wing mount F9, and the landing gear support F17.

**Wing:** The wing uses ■ 14% semi-symmetrical airfoil, with a flat section toward the trailing edge, permitting construction on a flat building surface. The plan shows a basic rib, which is altered slightly for the aileron and bellcrank cutouts.

The first step in construction is to glue the four ■ spruce spars to the dihedral brace W8, using white glue or epoxy. Now with all ribs, braces and trailing edge prepared, start the right panel by pinning down the lower trailing edge to the plan. Then, starting with W1, cement in all of the ribs. Use 1/16" thick scrap balsa to shim up the ribs from the plan.

The next step, attaching the 1/2 ■ 1" leading edge, is the most difficult part of the wing construction. Any curved or twisted wood here will cause difficulty in keeping the wing straight, so select good material. Cut one end of

the leading edge strip to the dihedral angle of the wing. While this half of the wing is in its flat position, add the 1/8 x 9/16" strips at the aileron cutout, then attach the upper trailing edge piece. Be sure to bevel this piece at the trailing edge joint. When the right half of the wing has dried, repeat the procedure for the left half.

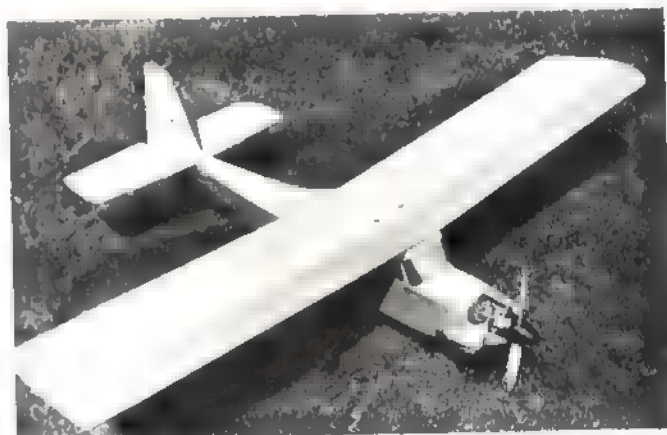
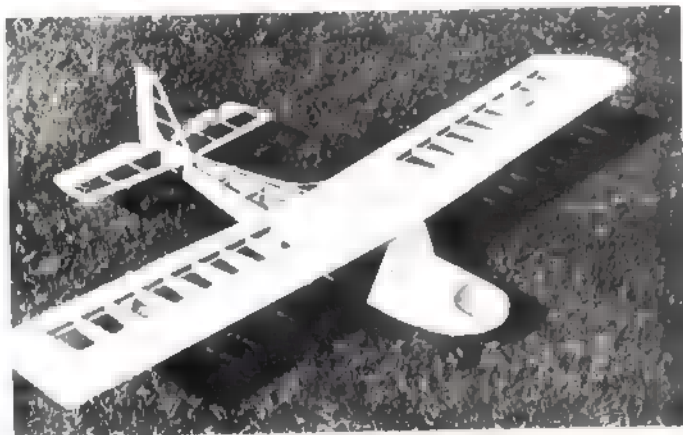
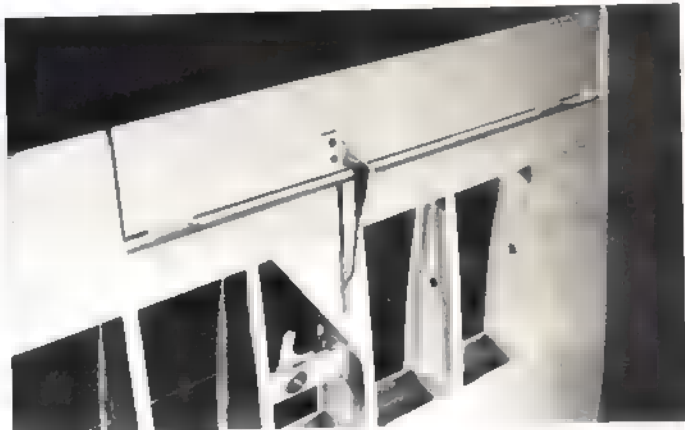
As with most plans, the left half of the wing must be made by retracing the essential lines on the reverse side of the plan, or by tracing the outline on a translucent paper and building from the reverse side. After both halves are completed to this point, the curved leading edge sheeting is added.

Lay the fuselage on its side, check it for squareness, then hold it in position on your building surface until dry. Following this, cement in the engine support F1 which must be completely drilled for the engine mounting, fuel line, throttle rod and nose gear bearings. Several heavy rubber bands are needed to pull in the fuselage sides for a tight joint.

The remaining 3/16" square cross-pieces are now added, bringing the rear section together and completing the most difficult portion of the fuselage.

To prepare the rear deck 1/8" and 3/16" square spruce stringers, soak them in water. Then, while holding them temporarily in place with rubber bands, allow them to dry. They will take a curved shape and can then be





**ABOVE LEFT:** When securing the ailerons, line the control horn up with the hinge line, and make sure that the linkage works easily and reliably before covering the wing.

**ABOVE RIGHT:** Detail view of the tension springs which retain the stabilizer.

**CENTER LEFT & RIGHT:** A simple-to-apply, yet visually contrasting paint scheme really helps the novice maintain reference with his craft. (See Bob Noli's "Paint for Performance" article in this issue of AAM).

**LEFT:** The rewards of learning to fly. The instructor stands close, while the student makes a controlled low pass. "Look at me, I'm flying!"



fitted and cemented into place.

The engine compartment is made to suit your engine and its selected mounting position. Although the engine may be mounted in any position, I chose a mounting 40° from horizontal, which places the muffler as low as possible outside the fuselage.

The curved 1/8" thick balsa over the front deck and the hatch was made by cementing several widths together, then soaking them in water. It was then wrapped around a 4" diameter tin can and allowed to dry, then fitted and cemented into place.

From here on, all remaining work on the fuselage may be taken from the plans.

To prevent building in any warps, again set and weight the trailing edge on your flat building surface, then attach the upper leading edge sheeting. When this is completed, remove the wing from the flat surface and cement on the lower

edge sheeting. I suggest using contact cement to attach all the leading edge sheets.

With the wing completed to this point, you can now say that the most difficult part of the job has been completed. The rest of the information can be obtained from the plan.

**Ailerons:** The construction of the ailerons should go smoothly. One item which must be kept in mind is that the control horns used for both the right and left ailerons are identical, but require a different mounting hole location on the underside of each aileron to obtain alignment with the bellcrank operating rods.

**Tail Section:** The rudder, fin and stabilizer are of open type construction and built flat.

Should you want to use the spring hold-down idea, the stabilizer will re-

quire the 1/16" plywood reinforcement and two drilled holes, to accept the spring retainers.

The tail assembly is cemented together prior to covering, using the fillet pieces shown on the plans. The locating keys on the underside of the stabilizer are also attached prior to covering.

**Finishing and Covering:** When all of your construction is completed, you're ready to smooth up the wood. If possible, do all this dusty work in one shot. Rough everything down with a small block plane, coarse sand, then fine sand. When this is completed, you can stand back and admire your work.

On my ship, the forward section, inside and out back to F2, was given a coat of Hobby Proxy Formula 11. It was then covered with red and white Super MonoKote, and the windows were made

*(Continued on page 85)*





# getting started in R/C

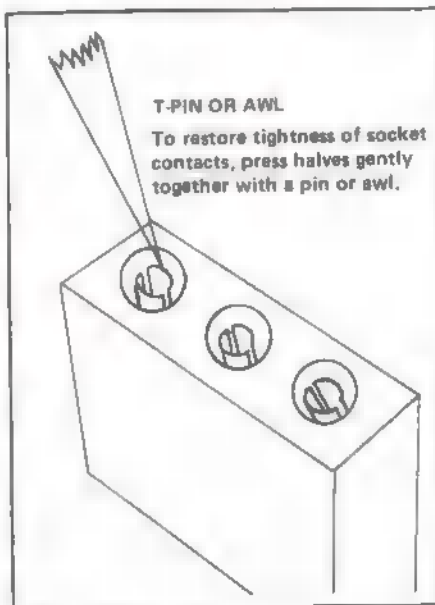
PLUGS / by Jim McNerney

SEVENTY-THIRD IN A SERIES

One of the major sources of problems in RC equipment is the plug or connector system. Plugs are used to connect servos and switch harnesses to the receiver, battery and switch harness, the charging system and, in some units, to join separate RF boards or crystals for easy frequency change. A radio system can have from two to 15 or more double connectors, each having two to five wires attached on each side. So, in a four-function, three-wire system, for example, there are about 40 potential trouble spots.

Connectors receive the most use and abuse in the average radio, except for servo gears. Each time a radio is installed or removed, each bench check-out, each crash, the connectors are subjected to some mechanical operation. We'll get into the effects of these operations shortly. First, let's talk about the connectors themselves, the types used, their good and bad features.

In the early days of RC, when tubes and B batteries were in vogue, connector size was relatively unimportant. Consequently, large plugs, such as tube and speaker sockets were used. These plugs, up to an inch in diameter, had heavy pins, up to 1/8" thick, with plenty of tension on the socket and plenty of contact surface on the pins. A nine-foot wingspan airplane could easily accommodate these connectors.



As equipment became more complicated and smaller, the need arose for smaller connectors, but with many or more connector pins than earlier plugs. At this point, connectors branched into two basic types, flat or ribbon connectors, and round plugs. Ribbon connectors have the advantage of compactness. Many multi-pin connectors can be

placed side by side in a small space (plug block). They are lightweight and lend themselves to modern production techniques.

Round plugs, on the other hand, are relatively bulky and present difficulty in soldering to "inside" pins. But the round connectors have one big advantage. They can be provided with a plastic cover mechanically fastened to the plug. The wires can be knotted inside this cover before being attached to the plug. This provides strain relief so that the force of connecting and disconnecting the plug is not transmitted to the soldered joints of the wires and pins. Ribbon connectors don't provide strain relief. Some manufacturers put heat-shrink tubing over the entire connector. This helps, but is not a positive mechanical attachment.

The pins and sockets have various configurations. Some pins are round and solid, some square, and some are flat strips of metal. Positive contact must be maintained between the pin and socket. For round pins, this is done by slotting and crimping the socket. Flat sockets are curved slightly to squeeze together on both sides of a flat pin. Three basic types of ribbon connectors are shown in Figure 1.

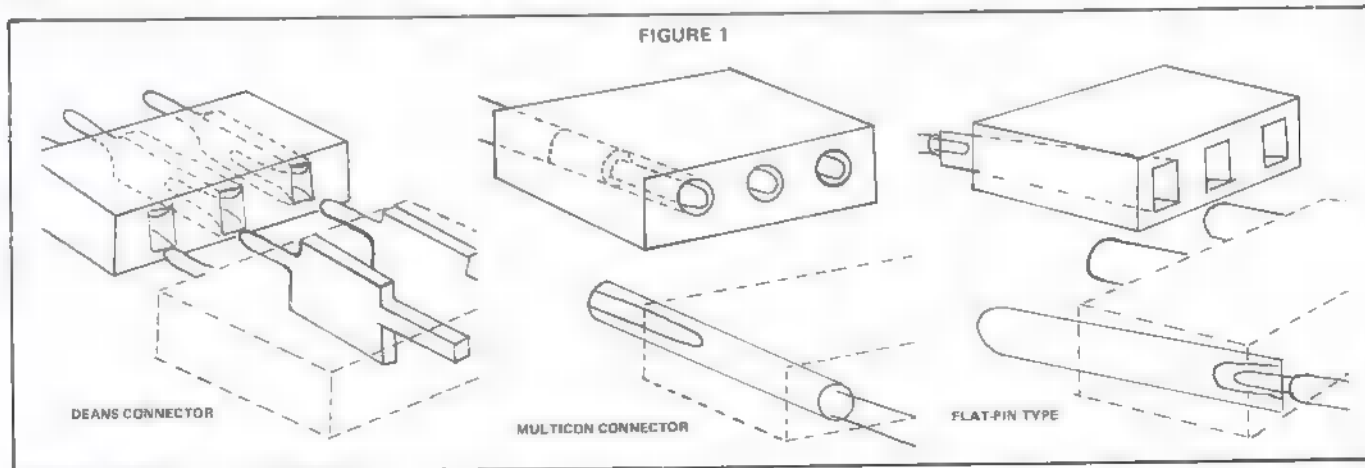
The first rule of maintenance for connectors is to keep them clean. Most of today's connectors are gold plated, so that tarnish and corrosion are not a severe problem. However, there are still many of the older sets around, and some new sets still use non-plated connectors. These must be inspected and cleaned periodically and burnished or replaced if corrosion is present. Keep plugs wrapped with tape or sealed in a plastic bag if you are flying hydro.

The next critical item in plug maintenance is contact tension. Some connectors, such as the old Brunner and Heathkit plugs, lose tension with repeated use—and abuse. The spring sockets must be periodically crimped back together with a pin or awl (see illustration). Check each time a plug is mated for good friction contact.

The next maintenance check is for integrity of the wire attachments to the plug. This is probably the single most frequent cause of radio failures. Each time you install and remove the radio or insert or remove a plug, inspect each

(Continued on page 90)

FIGURE 1



A minute and a half with  
a paper wing glider?  
Indoor? Impossible!  
That seemingly impossible has been  
accomplished.

# SUPERSWEEP

as told by Bob Meuser

The Supersweep 22 has all the lines of a winner. The looks are deceptively simple, though, as a quick reading of the construction sequence reveals.

On February 18, 1973, flying in the old Marine dirigible hanger at Santa Ana, Ron Wittman made flights of 90.0 sec. and 88.7 sec.—the best two flights in the series of nine—to establish an official AMA National Record for Indoor Hand-Launched Gliders, Category III (unlimited ceiling height).

A couple of lucky flights perhaps, made under ideal conditions? Hardly! Rather, during a year of intensive effort (backed by nearly two decades of previous glider experience) Ron inched his way toward the record with a series of increasingly successful designs. Ron made 90 sec. twice, dozens of flights over 85 sec., and only rarely a flight under 80 sec. And the conditions? The worst imaginable! If the launching was the slightest bit off, a collision with a parked helicopter was inevitable.

At the 1973 NATS, flying a light straight-dihedral version of the SS22, Bucky Servaites won the IHLG event in Open Class. And while we were polishing up this story, Ron's 11-year-old son, Steve, who looks scarcely big enough to carry a 22" glider, let alone throw one, established a Junior National Record with a two-flight total of 127.2 sec. That should permanently lay to rest the myth that small people should fly small gliders.



Steve Wittman, the author's 11-year-old protégé, set a Junior National IHLG Record with the Supersweep. He sure showed dad that record-setting can be a family affair.

Ron's record was set with the SS22. However, he has actually surpassed his record by a half second using a 24" span version. While the difference in flight times is not significant, Ron feels that the Supersweep 24 has more potential than the SS22, and is currently flying only the 24. The plans are basically those for the 22, but the minor modifications required to stretch it to the 24 are also indicated.

The Supersweep incorporates distinctive design features that might be applied to any design to advantage. The most noteworthy features of the design are the airfoil section, the high aspect ratio pointed-tip wing planform, the manner in which the thickness tapers toward the paper-thin tips, and the severe wash-out in the wingtips.

The design of the glider, however, is only one of many factors required for success in IHLG. Other important factors include: the construction and finish, proper trimming and adjustment, the athletic factors—strength, stamina, and control—that result in a powerful, consistent launch, and a long list of psychological factors including the will to improve, and the persistence to view failure as merely a temporary setback.



Although there are probably a number of modelers who can build as good a glider as Ron Wittman, I doubt if there is any who can build a better glider. Since we have not chosen to emphasize the importance of each step as we consider it in sequence, we do emphasize that every step in constructing and finishing an IHLG is important and must be done with care. We strongly urge you to follow these instructions to the letter. Then, if you think you have a better way of performing a particular operation, or if you wish to try a different method later, you will have a point of reference. The following description applies to a right-handed person. For lefties, of course, everything is reversed.

**Selecting The Wood:** The wing, being the heaviest part of the glider, must be made from light wood, or the glider will be overweight. A piece  $1/4 \times 3 \times 36$ " should weigh no more than 30 grams; a piece 4" wide, 40 grams. If such light wood is not available, the wing will have to be made thinner and possibly slightly undercambered, the spruce leading edge might have to be omitted, and you will have to be extremely careful not to apply too heavy a finish. C-grain or quarter-sawn wood—the kind showing iridescent specks on the surface—is ideal. The wood should be flat, and the grain should be straight and parallel to the edges. The piece should balance very close to its center. If a piece of uniform density cannot be found, the heavy end should be toward

the left wing tip, and the hardest edge should become the leading edge. Usually, suitable 4" wide material is not available, so the wing blanks must be made by gluing two narrower strips together. Be certain that the edges to be joined are straight and square. Use a white glue—Franklin Titebond is an excellent one.

For the tail surfaces, perfectly flat C-grain wood is essential. The wood should be light, but not so light as to be flexible or mushy. Lack of flatness or stiffness will cause the tail surfaces to deflect or vibrate during the 80 mph launch, and that will decrease the launch altitude, or result in a smashed glider.

For the fuselage, select a piece of stiff, medium weight straight-grain  $3/16$ " balsa sheet, preferably with some showing of C-grain. Compare the weight, stiffness, and straightness of several pieces, and select a piece that is as stiff as possible but not too heavy. It is difficult to set down hard and fast rules; selecting fuselage wood requires judgement that can be gained only by experience. The finger brace can be made from scraps of the same piece.

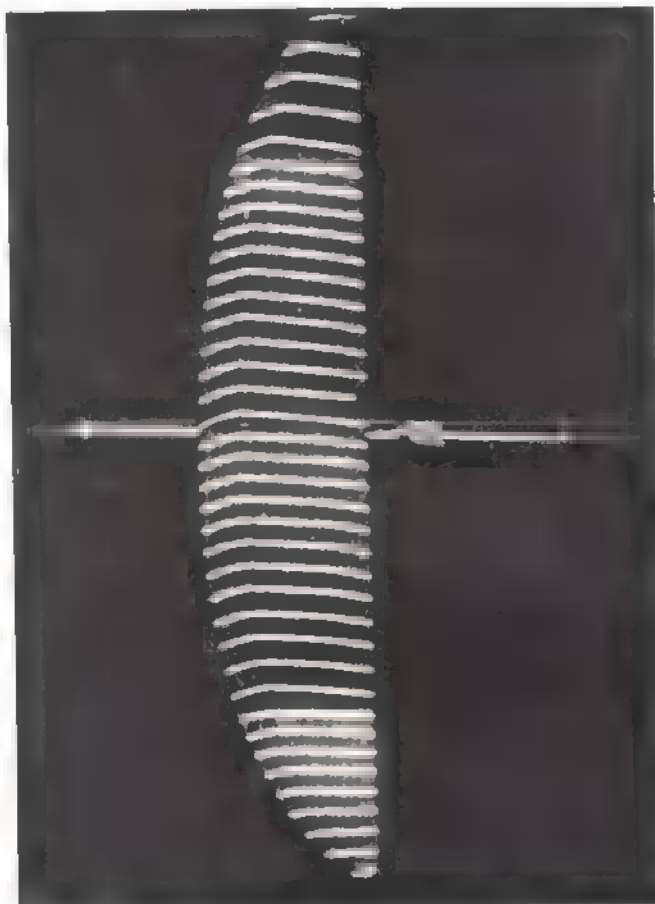
**Laying Out The Parts and Cutting To Outline:** Make cardboard templates for the wing and tail surfaces. Transfer the outlines to the balsa by tracing around the template with a ballpoint or sharp nylon-tip pen. For the wing and stabilizer, only a half-template is required (flip the template to get both

sides). Note that the wing is to be made in one piece, then cut into four sections and rejoined after the sanding has been completed.

Cut all of the parts to shape, using a power jig saw or a new single-edged razor blade. The blade must be sharp, or it will tear or compress the soft wood. Cut no closer than  $1/32$ " to the outline, then block-sand each part to its final outline using 320 garnet paper. Using the template, mark the centerline of the wing. Balance the wing blank along the centerline, and turn the blank so that the heavier side becomes the left wing.

The spruce-reinforced leading edge is well worth the effort it takes to apply, provided that the model is not in danger of being overweight. It minimizes damage, and makes it easier to accurately form the front portion of the airfoil. A piece of  $1/16 \times 1/8$ " spruce is glued to the leading edge, flush with the bottom surface. When the sanding of the wing is completed, only a hair over  $1/16$ " of the original  $1/8$ " depth remains. Soak the spruce in water first, or simply pre-curve the spruce by drawing it between the fingers. This will place smaller demands on the strength of the glue joint. However, as the curvature of the leading edge of the Supersweep is gentle, this process is not essential.

**Sanding:** Make two balsa sanding blocks, each  $3/4 \times 3 \times 11$ ". Round off the long edges slightly. Each side of the block is covered with paper of a different grit number. No. 180 and 280

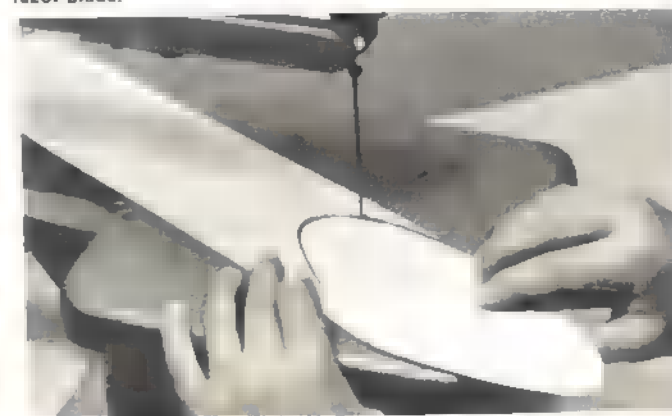


This eerie looking photo is an illumination of the wing with "sheets" of light to show the airfoil section. The depth is exaggerated, especially on the right wingtip. One can clearly see the tip wash-out, as well as the wash-in on the left panel.



C-grain or quarter-sawn balsa, as shown here, is very resistant to bending across the width of the sheet. Since it resists warps, it is essential for true tail surfaces.

Parts should be jig-sawed to outline, then cut with a sharp single-edged razor blade.





Final shaping to outline is done with coarse garnet paper.



The high point of the wing is marked with pin holes in the partially shaped wing. The holes remain visible as the sanding progresses.



A handy gadget for marking the leading edge is a cabinet maker's gauge. Accurate marking is essential.



A razor plane saves time, but **can** cause problems if not properly used. Note that the cutting edge is angled 45° to the direction of the stroke.

garnet paper are used for rough and final shaping, while 320 and 400 "wet or dry" silicon carbide paper are used for final thinning and smoothing. This stuff is expensive. Don't use a cheaper grade. Ordinary "flint" sandpaper is far less suitable.

Cut the paper into strips 1/2" wider than the sanding blocks. Stick it to the block with contact cement and wrap the edges up around the sides of the block. While balsa is about the softest material anyone would think of using sandpaper on, it dulls sandpaper rather quickly. Replace it as soon as it begins to lose its cutting ability or becomes clogged.

A modeler's razor plane can be used to rough-out the top of the wing and the fuselage, but it cuts too fast to use for shaping the tail surfaces. Use a new blade. Hold the plane at an angle to the direction of the cutting stroke. Soft balsa is difficult to plane. If it doesn't plane smoothly, or if it leaves streaks of uncut wood, forget the plane and use sandpaper for the whole job. Don't use a thin blade, a hollow-ground blade, or a stainless steel blade. Since Gillette made their Blue Blades "super," the best blades are industrial paint-scraper blades.

Any good book on woodworking, some books about model planes, and your next-door neighbor, will tell you that the proper way to sand is parallel to the grain of the wood. Hogwash! Sand directly across the grain, at an angle to the grain, or with a circular motion. If you sand with the grain, the balsa comes off in long strings that simply clog the sandpaper and compress the wood.

Use as coarse a grit as you can get away with. Switch to a finer grit only when the coarser grit cuts too fast for good control. Beginners often switch to a finer grade too soon in an attempt to

get a smooth surface; then, finding progress is too slow, they bear down and crush the surface fibers of the wood. *Never* bear down! That will compress the wood. It will expand later and ruin the airfoil shape. If you feel you aren't making sufficient progress, go back to a coarser grit, replace the sandpaper with fresh stuff, or go watch TV until you get over the feeling, but *never* bear down!

All sanding should be done while the part is held against a hard, flat, clean surface. A piece of 1/4" plate glass with at least one edge ground straight and true is ideal, but it can be dangerous. A lamp placed under the glass will aid in judging the thickness as the sanding progresses. Alternatively, simply hold the piece up to the light to check the thickness, but do it often! A Formica-covered sink cut-out, sometimes available at cabinet shops or lumber yards, is good too.

**Wing and Tail Surfaces:** Sand the bottom surfaces of the wing and stabilizer blanks perfectly flat and smooth, first using 320 paper, and finally 400. Be especially careful not to round-over the edges or the tips. Mark a line along the leading edge of the wing exactly 1/16" above the bottom surface (a cabinet-maker's marking gage does the job nicely). Sand the upsweep of the bottom of the leading edge. The upsweep starts 3/8" back from the leading edge and curves up uniformly to the marked line. To avoid tearing off the spruce strip, it is best to sand toward the wing.

Before shaping the top of the airfoil, sand the wing to the proper thickness at each station, as shown on the plan. Note that the taper toward the tips is quite severe compared to other gliders, and that the tips are quite thin and fragile.

Using a cardboard template, draw a line on the top surface with a nylon-tipped pen to indicate the high point of the airfoil.

Next comes the most critical part: shaping the top of the airfoil, it is essential that the high point be kept sharp. I had difficulty doing that, until I started using the following method. (Ron sands the top surface freehand without recourse to such crutches as this, but I don't have his dexterity.)

Secure a strip of masking tape to the top of the wing, so that the rear of the tape is along the high-point line. Sand the rear portion of the wing to shape. The tape will not only serve as a guide, but since it does not sand as readily as balsa, it will prevent accidental cutting into the front part of the airfoil. Note that the top of the airfoil is a straight line from the high-point to the trailing edge. If you accidentally sand into the tape, replace it.

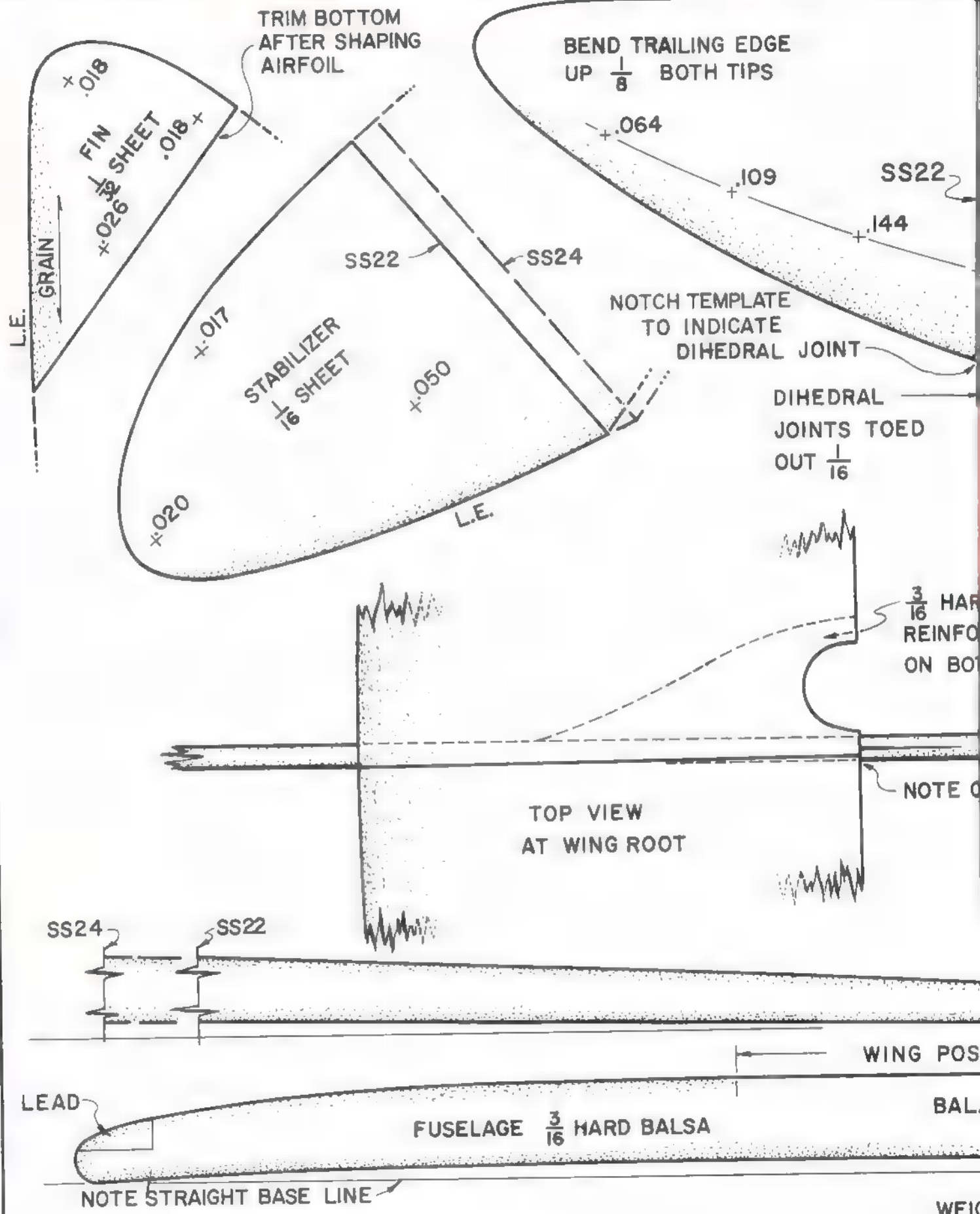
When the aft portion of the airfoil is completed, remove the tape—carefully, so **not** to rip up shreds of balsa—and apply masking tape with its front edge aligned on the high-point line. Then sand the front part of the airfoil in a uniform flat curve down to the marked line on the leading edge. Note that the leading edge is *sharp*. The shape of the airfoil section is extremely critical, so refer to the plans.

Sand the top of the stabilizer to the prescribed thickness, then sand in the airfoil shape. Sand the rudder similarly, but work back and forth from one side to the other to ensure a symmetrical section.

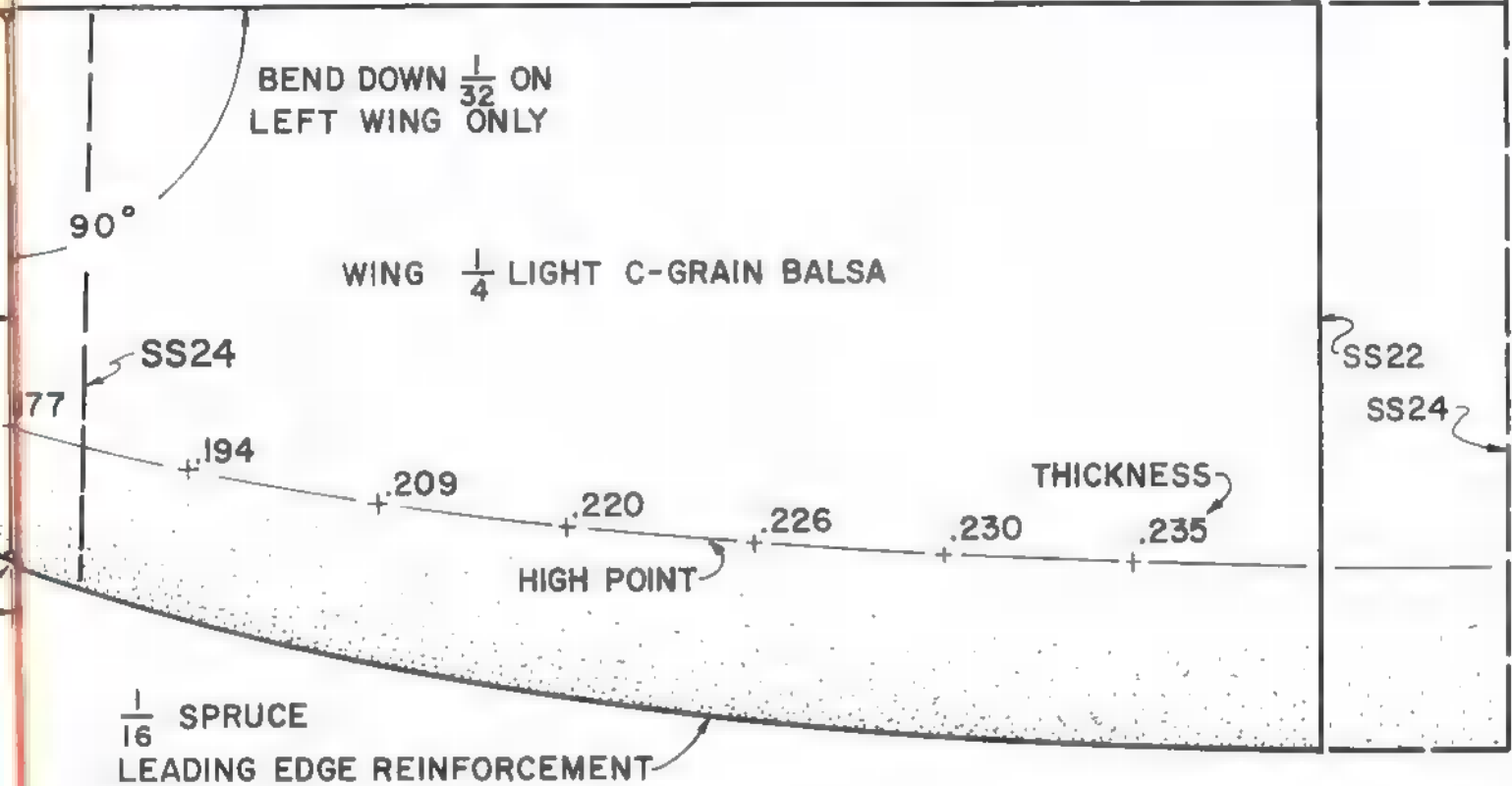
Ron doesn't actually measure the thickness of the parts. He knows by the feel of the parts. He knows by the feel of the part, and by how the light shows

(Continued on page 90)



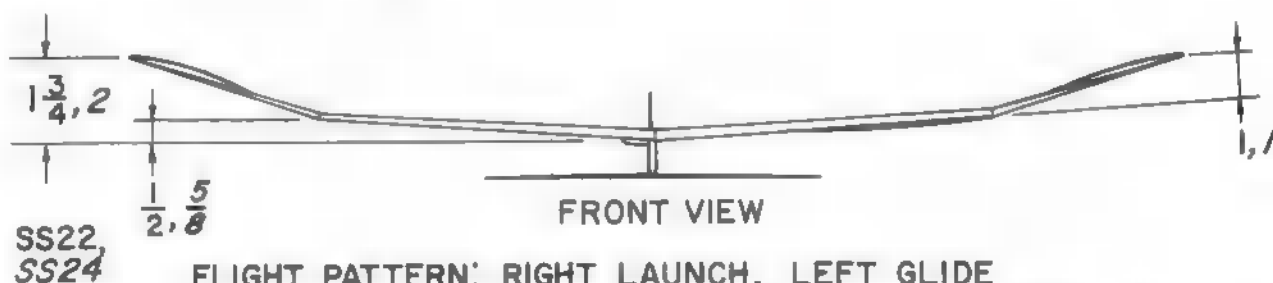
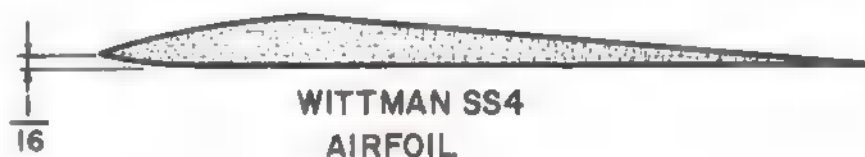


DRAWN BY R. MEUSER

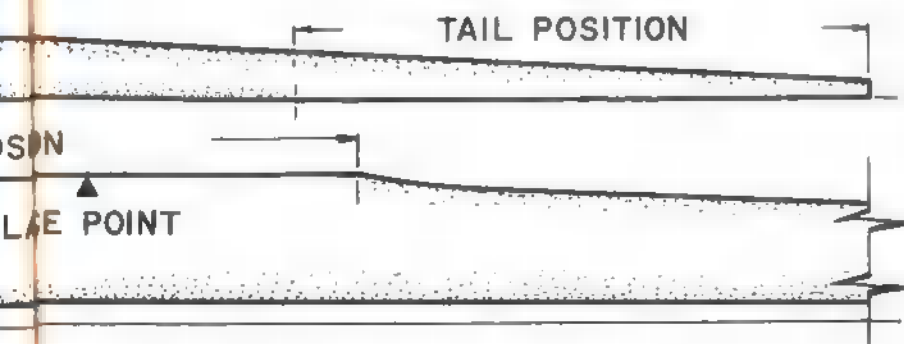


BALSA  
REINFORCEMENT  
FROM

OFFSET



FLIGHT PATTERN: RIGHT LAUNCH, LEFT GLIDE  
FINISH: 2 TO 3 COATS SEALER, HIGHLY POLISHED AND WAXED



WEIGHT: SS24, 25 TO 28; SS22, 22 TO 25 GRAMS

## Ron Wittman's CATEGORY 3 INDOOR HAND LAUNCHED GLIDERS **SUPERSWEEP** 22 and 24

JR. AMA RECORD STEVE WITTMAN  
OPEN AMA RECORD RON WITTMAN  
BEST FLIGHT 1 MIN. 30.0 SEC.



# OUR Flite Pak Kit will work with YOUR transmitter!

## 1-8 flite pak



|          |                                 |          |
|----------|---------------------------------|----------|
| 12G18-2  | 1-8 FLITE PAK w/2 BANTAM SERVOS | \$74.95  |
| 12G18-4  | 1-8 FLITE PAK w/4 BANTAM SERVOS | \$114.95 |
| 12G18-2L | 1-8 FLITE PAK w/2 LINEAR SERVOS | \$76.95  |
| 12G18-4L | 1-8 FLITE PAK w/4 LINEAR SERVOS | \$116.95 |

The Digital Commander series of kits are designed to be compatible with any modern existing system and offer expansion within the system without the need to buy a complete outfit.

The Flite Pak comes complete with One-Eight Receiver/Decoder, plastic case, number and style of servos specified, switch, and connectors. All you need for building except batteries.

Will operate with any modern digital transmitter on the same frequency.  
Frequencies available are: 26.995, 27.045, 27.095, 27.145, 27.195, 53.1, 53.2, 53.3, 53.4, 53.5.

CANNON

EK

HEATH

KRAFT

MRC

ORBIT

RCM

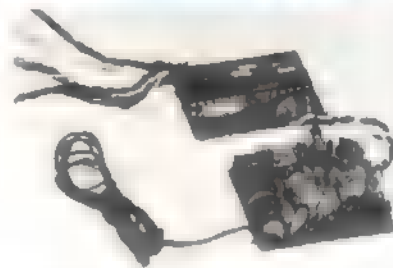
ROYAL

PROLINE

WORLD

OR ANY OTHER  
MODERN DIGITAL  
TRANSMITTER

## 1-8 RECEIVER



12G18 1-8 RECEIVER/DECODER KIT \$34.95

This receiver features voltage regulated circuitry with AGC and a double tuned front end. An 8 bit shift register in the IC decoder offers up to eight channel operation of positive or negative pulse servos with three or four wires.

Plastic case measures 1.45 x 1.72 in. Weight is 1.4 oz. Connectors are not furnished. Available in 27 and 50 mHz. Please specify frequency.

## SERVO

An IC servo amplifier and the popular D & R servo mechanics combine to make a servo that gives superior resolution and rapid transit time. Will operate with 3 or 4 wire IC decoders with positive pulse output.

Available in Bantam (rotary output) which measures 1 1/2 x 1 7/16 x 3/4 in or Linear (linear or rotary output) measuring 1 13/16 x 1 7/16 x 7/8 in.



|        |                  |         |
|--------|------------------|---------|
| 14G20  | BANTAM SERVO KIT | \$21.95 |
| 14G20L | LINEAR SERVO KIT | \$22.95 |

# DIGITAL COMMANDER

## THE SENSIBLE APPROACH

ADD \$5.00 FOR RECEIVER/DECODERS AND FLITE PAKS ON 72 MHZ.  
AVAILABLE ON: 72.08, 72.16, 72.24, 72.32, 72.40, 72.96, 75.64.

Technical literature available upon request.

Complete catalog-- \$1.00

# ACE R/C

# PACER

DESIGNED BY OWEN KAMPEN



Ace R/C proudly announces the PACER, a totally new concept in R/C model aircraft. It is a high performance 1/2A powered plane designed to have the fast speed, solid tracking, smooth maneuvering, and axial roll characteristics of modern pattern ships in a small, compact, economical package based on a Cox Tee Dee .049 or .051 and a two-channel radio with miniature servos and a small battery pack.

This airplane offers more excitement and ability-to-perform than ☐ ☐ before in its size class. All of the advantages of small airplanes are maintained: it builds fast, it is economical on fuel, it transports easily, it can be flown in the smallest of fields with ☐ need for a runway. With all of these advantages, it still has the outstanding performance ☐ challenge the best of fliers.

All parts ☐ band sawed and precision sanded with foam wing.

(Ace has a 1 3/8" spinner available for this plane: 37L78—\$1.25.)



13L107—Pacer Kit \$19.95

## SPECIFICATIONS

Span—40"

Length—30"

Weight—Approx. ☐ oz. all up

Engine—Cox Tee ☐ .049 ☐ .051

Functions—Ailerons/elevator or coupled ailerons-rudder/elevator

ACE R/C, INC. HIGGINSVILLE, MO. 64037

Dear Paul,

I would like to order the PACER kit from you direct. Enclosed is my check for \$19.95.

NAME

ADDRESS

CITY  STATE

ZIP

# ACE R/C INC.



# The 'electri-flying' Dream



The "electri-flying" Dream and the launch box make an entire package for enjoyable electric flight.

This month, build a kit model for electric power. There's also a good ground support system for your flying pleasure. / by Mitch Poling & George Beaver

The electric Dick's Dream\* is a fun plane to fly. It is quick in the air, but gentle for the beginner. It is also a tough airplane; it can take a lot of punishment and will come back for more. If you have seen a glow-engined Dick's Dream fly, you already know its virtues. The electric version flies well, plus there is no fuss or muss, no clean ups, and no engine starting problems.

One of the authors learned to fly RC with his electric Dick's Dream, in a local schoolyard; the other author has spun his in from two hundred feet, and has thirty flights on it since then (it did get a new nose job!). If you think electric power could be your thing, and you want to do it on a budget, read on!

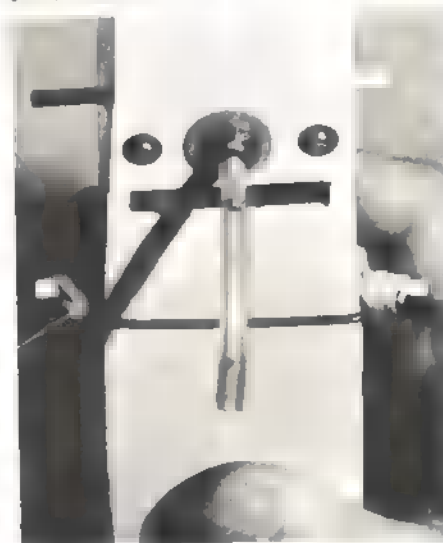
## CONSTRUCTION

Follow the instructions in the Dick's Dream kit, with these exceptions: (1) Do not shorten the foam wing panels, leave them full length. Do angle the wingtips as shown in the plans. (2) Do not glue in the plywood firewall (it can be taped in to help in the nose assembly). (3) Glue the plywood base for the landing gear under former F2, not to the rear as shown in the plans. (4) Omit the rail and plate actuator mounting. All

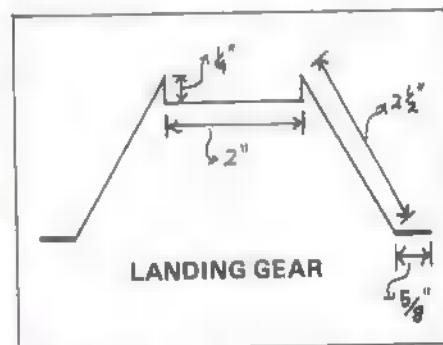
other changes made after completion of the stock kit.

Complete the fuselage, then trim back 1/8" off the leading edge of the top and bottom nose planking. Replace the firewall with two 1/8 x 3/16 = 1 1/2" spruce or plywood strips at the top and bottom of the nose in the normal firewall position. Trim back the nose cheeks 3/4" to 1" for prop clearance. The photos show the motor mount detail.

The trip switch turns the motor off on landing. Note the cooling air duct and the landing gear placement.



The landing gear is the tail dragger type, to allow the use of a cut-off (trip) switch. It is rubber banded on; use the measurements in the sketch for bending the landing gear wire supplied in the kit.



Light sponge rubber, wood, or plastic wheels are used. Place a 1/8 x 3" dowel through the fuselage at a point 1/2" above the floor and against the leading face of former F2.

The cut-off switch, as described by Mitch Poling in "Fly With Plymouth" (AAM, June 1974) is installed 1" in front of former F2 on a plywood hatch held down with small wood screws. The air vent for the motor is cut out just behind the hatch, about 1/4 x 5/8" in size (see photo). The mini toggle switch is Radio Shack 275-324, 325, or 326, 10A, 125 volt.

Mount the actuator on a bench mount approximately 1" from F3 (rear of the cabin). The bench is made from

\* Last month's AAM featured the authors' rework of a Plymouth motor for use in the Dick's Dream. Since that article, a better version of the motor has evolved. It is recommended that an armature with 25 turns of 26-gauge wire be used for peppier performance. Use silver solder when securing these windings.

two 5/8" foam blocks and a plywood plate (see photo). The actuator is bolted to the plate with a 4-40 x 1" machine screw and blind nut. This method provides easy access to and removal of the actuator. It also provides the needed room for the radio equipment and battery pack.

Install the motor, battery pack, charging jack, and cut-off switch. Hold the batteries in place with a removable 1/8" bulkhead that slides out for access to the batteries (see photo). The receiver and receiver batteries are held in place by foam blocks (see photo).

Several hints for a really great electric Dream Machine: Watch the weight—ready-to-fly weight should be about 16 oz. Spread the glue on thin to win. There's no need for fuelproof finishes; I used wet-look contact paper and household spray paint.

### FLYING

Follow the instructions in the Ace handbooks. The motor has about 1° downthrust and 2° sidethrust. The wing shim varies according to wind conditions. In calm weather, 1/16" to 1/8" shim does fine; in winds ten mph or more, no shim is required. Flip the switch, and good flying!

### LAUNCH BOX

The launch box is a neat and compact means of toting all the necessary equipment for the electric flight enthusiast. It includes the charging batteries for the flight power pack, a metering system with a variable charge rate control, a storage compartment for tools and extra parts, a transmitter caddy and a timing device to tell you when the power pack is charged. All of this is packed in a plastic lunch box; thus the name Launch Box.

Constructing the launch box is quite simple. In fact, the most difficult step is building the meter/storage box and transmitter caddy. The batteries are connected in series with 18 gauge household wire and placed in one end of the lunch box. Color code the positive (red) and negative (black) battery terminals with contact paper to prevent pilot error, i.e., reverse charging. A simple alligator clip system is connected from the meter and terminals to the batteries. This will prevent the inadvertent shorting out of the charging system during transportation or storage.

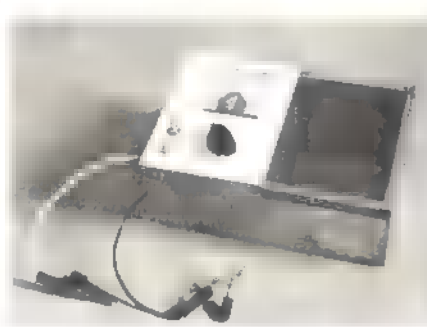
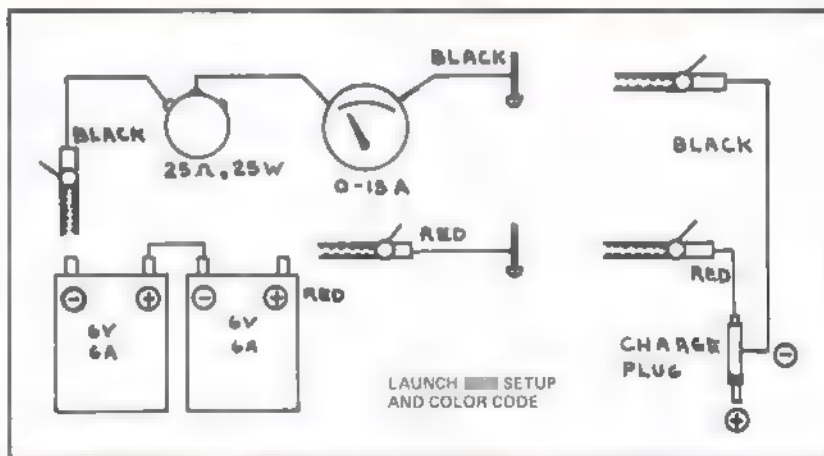
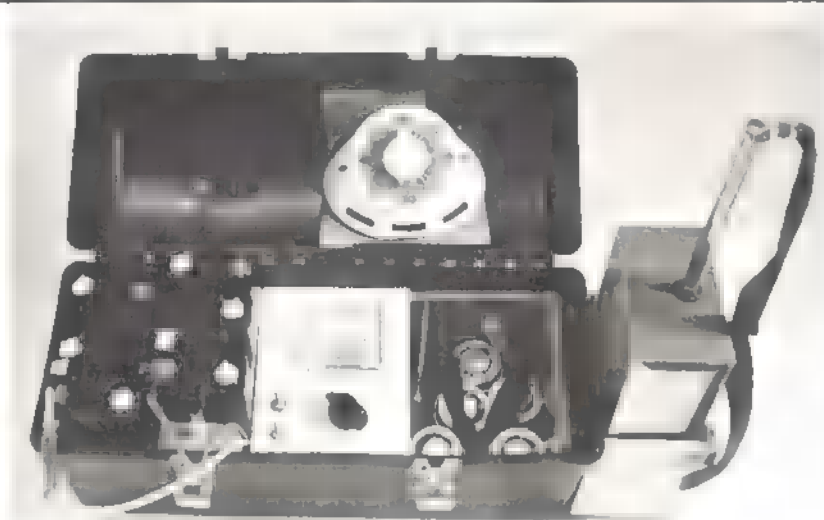
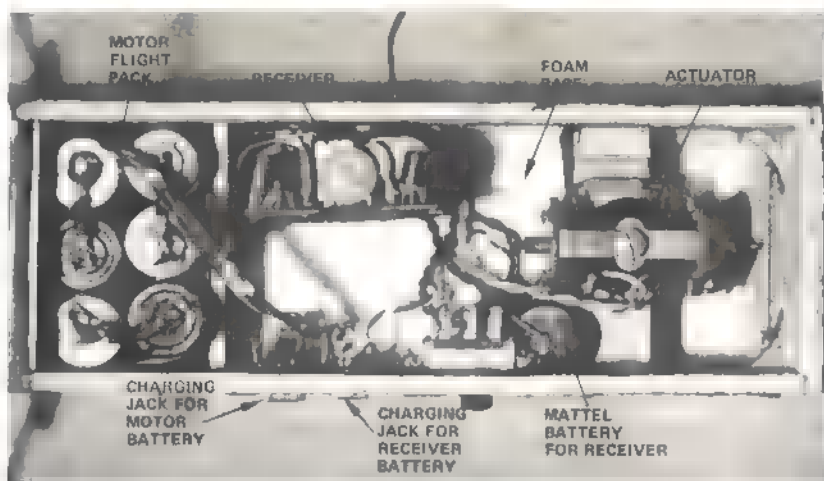
(Continued on page 91)

### MATERIALS

- 1 Plastic jumbo size lunch box (thermos)
- 1 0-15 DC ammeter (or 0-10 amp)
- 1 0-25 ohm 25 watt variable resistor
- 1 Kitchen timer with bell
- 1 small phone plug (to fit charge jack on airplane)
- 1 1/4 x 12 x 12" piece plywood
- 1 3' length 2-wire speaker wire
- 2 16" length of 18 gauge insulated wire (2 colors)
- 2 6 volt 6 amp/hr. motorcycle batteries\*
- 2 4-40 x 1" machine screws, washers and nuts
- 4 Alligator clips

\* Batteries can be used if your electric fleet includes a ship powered by the Astro-10; however, you will lose a portion of the storage area.

### LAUNCH BOX



TOP: Typical equipment installation. CENTER: The Launch Box is a complete ground equipment center, with timer, charge system, storage areas and transmitter caddy. ABOVE: The Launch Box wiring looks complicated; but check out the drawing and you'll see it is really quite simple. LEFT: The charging system for the Launch Box is simple to build. It charges not only the motor batteries, but also the receiver batteries.



# The Super Servo.



The FP-S4 is Futaba's Super Servo. It's super inside, too, since we've packed the exclusive logic and power section PCBs together in Futaba's the first reversible logic package. And instead of 100,000 components, we've got the FP-S4.

The FP-S4 is built outside out. With a tough, watertight case of high impact plastic. And it's built to its ability of 100% at 100% draw, and you've got a servo that's built for the most strenuous use.



And the FP-S4 is now available in all Futaba's two and three channel systems.

We stock just one of Futaba's high performance servos, including the FP-S5 mini servo, the FP-S6 reverse servo, and the FP-S7 ultra servo.

Each carries the same quality of components and design. And the same 6 month warranty. All backed by Futaba's U.S. Service Center.

## Futaba

Futaba Company, U.S.A.  
10000 Santa Monica Blvd.  
Van Nuys, California 91410

# max-fly

by Bill Ponder



Every so often, ■ idea reaches out and seizes its victim. This is exactly how Max-fly came about.

For years, I subscribed to the concept that a glider is necessarily a machine heavier than air...but only slightly. A feather that could carry radio, be controllable as to landing location, and stay aloft on the stillest of air was the epitome—to my way of thinking. Of course, I was constantly frustrated.

In 1970, ■ very wise man named George Meszterler started me thinking about the differences between the undercambered wing sections that I had been using and the faster laminar airfoils. All of my thinking underwent an abrupt shift. (It would serve ■ purpose here to discuss the differences between the laminar and turbulator concepts. Any reader who is curious enough can research these differences easily, or call on my teacher George Meszterler.)

Then came some glider rule shifts, and some new tasks started appearing at contests. The glider that can fly thermal duration, step out and move around pylons, and fly goal and return events on the same day (with the same wings) wasn't my old feather.

The winter of 1970-71 was when that new idea seized me. Suddenly, I was hard at work, putting together this fresh idea and checking it out with George. The result flew well, but was not quite good enough for the thermal events. Back to the board, and this time George suggested the Eppler 387 airfoil, for the wing, with a symmetrical stabilizer and rudder configuration. This setup worked well, with one exception—the plane landed at 20 mph or better.

To my consternation, I spent the summer of 1973 landing outside the spot after max flights.

To counterbalance my own weaknesses, I decided on flaps and spoilers. The result was mixed, so spoilers alone were tried and found to be the best way. As was readily apparent on this bird, the ■ of oversized spoilers (which act partially as brakes) seemed to make the most sense—they were the most effective configuration for me. After some practice, landing on target wasn't too much of a problem.



The Max-fly is not ■ small airplane. Fourteen feet of span certainly are an asset in performance.

For you technical buffs, the configuration shown in the plans will fly at ■ median speed of approximately 20 mph, with a Reynolds Number of about 157,886.4 for the center section of the wing. At the tip, the Reynolds Number will be 94,731.8, which is well above the magic danger number of 60,000. Additionally, it should be mentioned that, at 15 mph tip speed, the Reynolds Number would be 71,048.85, still well above that old 60,000 number where the lift-to-drag ratio frightens eagles.

Perhaps it should also be mentioned that the swept-back tips tighten turns almost to the point of winding in. You must start to correct the turn almost as soon ■ you go into it. The reward, however, is a tight flat turn, ideal for thermaling.

Please bear in mind that this is not ■ forgiving, slow-moving, easy-to-fly bird. It's a demanding, extremely efficient competition machine. Like a high-powered sports car, it requires time and effort to master, but will reward with tremendous excitement, superlative performance, and loads of fun.

## CONSTRUCTION

**Wings:** (These must be built first to line up wing rod tubes in fuselage.)

1. Cut out center section ribs. You will need six of 1/16" ply, the rest of 1/16" balsa. Cut a root and tip rib of 1/4" ply, sandwich 12 pieces of 1/16" balsa between the ply guides and sand to shape. Cut the torque rod holes.

2. Lay the plans on a flat board and cover with Saran Wrap. Place the 1/8 x 1/2" spruce rib header into position against ■ straight edge at its front to en-



sure alignment, and glue all the balsa center section ribs into the header.

3. Ribs 1, 2 and 3 are ply, since they will carry the wing rod tubes. Carefully measure and drill holes to carry these tubes, as per the plans. Make two of rib 1, two of rib 2 and two of rib 3 at the same time for alignment accuracy.

4. In step No. 2 you glued the balsa ribs to the header. Now glue the ply ribs 1, 2 and 3 to the header. Glue on the top front spar (skip the rear spar) and glue on the 2 x 1/16" sheet top trailing edge. After the white glue is dry, glue in the rear upright spar.

5. Do not glue on the front top sheeting until webbing is added.

6. Turn over the wing panel and glue on the bottom spar, bottom 1/16" sheet trailing edge and bottom front sheeting. Please note that the rib header has to be shaved so that the front sheeting rides on top of it, rather than butting against it. Now glue on the 1/2 x 1/2" balsa leading edge. The bottom sheeting and top sheeting for the trailing edge have to be bevel-sanded, in order to meet at the trailing edge at a thickness of 1/16".

7. Build the other three wing panels in the same fashion.

8. Using 1/64" plywood, cut and glue (with white glue) all the required webbing from top spar to bottom spar.

9. Glue on the top front sheeting, after carefully measuring the required polyhedral angle and epoxying the sections together and adding bracing, as per plans.

10. Note that the front sheeting starts at rib 4. Ribs 1, 2, 3 and 4 are still open and uncovered top and bottom. After fitting wings to fuselage, so that the tubing is inserted accurately, and after epoxying the tubing to ribs 1-3, cover ribs 1-4 (from spruce rib header to front edge of 2" trailing edge) with 1/16" ply. Cover the bottom section first, and load plenty of epoxy around the wing rod tubes and the spars against which they ride. It would be best to use a long curing epoxy, such as Hobby-poxy Formula 2, for maximum penetration and strength.

11. Build in spoiler assembly. Plans show full details; follow them explicitly.

12. Glue on capstripping, 1/8" ply root ribs and wing tips. Sand carefully, being sure to maintain the integrity of the airfoil throughout.

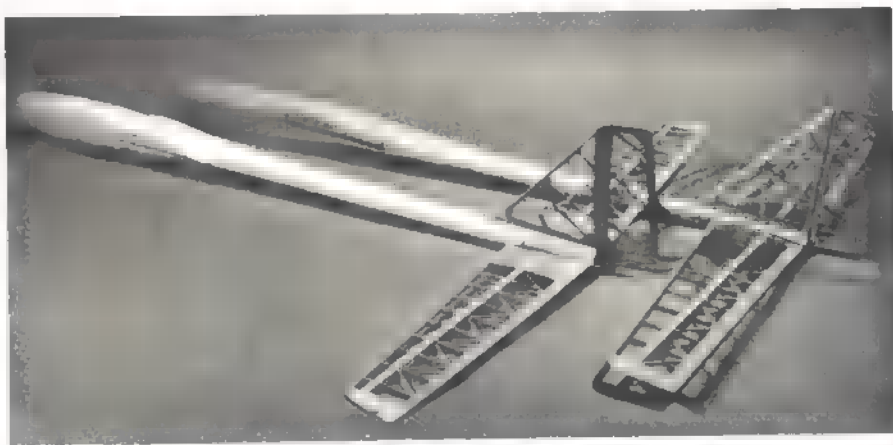
13. Carefully weigh each complete wing section and adjust equally.

**Fuselage:** Some time was spent in making a fiberglass fuselage which will be available at moderate cost to anyone who doesn't want to build the wooden fuse described in this article. Contact me (18 Carmen Drive, Nanuet, N.Y. 10954) and your request will be sent on to the glass fabricator, who will bill you directly.

1. Cut out sides and doublers. Splice with white glue where necessary. Cut out the 1/8" section ply bottom and the 1/16" ply top doubler. Cut out the balsa fuse top (from section D to tail).

2. Glue on the corner bracing (triangular stock as on plans) to balsa sides.

3. Glue on 1/8 x 3/8 x 10" spruce side wall supports for the hatch seat.



The Max-fly can be built with either a fiberglass or balsa fuselage. The soaring scene seems a toss-up — this subject, with an equal amount of each type to be found at most contests.

4. Epoxy (use Hobbypoxy Formula 1) the 1/16" ply doublers to the 1/4" balsa sides between the triangular stock.

5. Cut out the front balsa block side and bottom pieces.

6. Trim the top part of the 3/8" triangular balsa at the top of the fuse (from D to H) as a seat for the 1/16" ply top doubler. (Trim the inside 3/16" wide by 1/16" deep.)

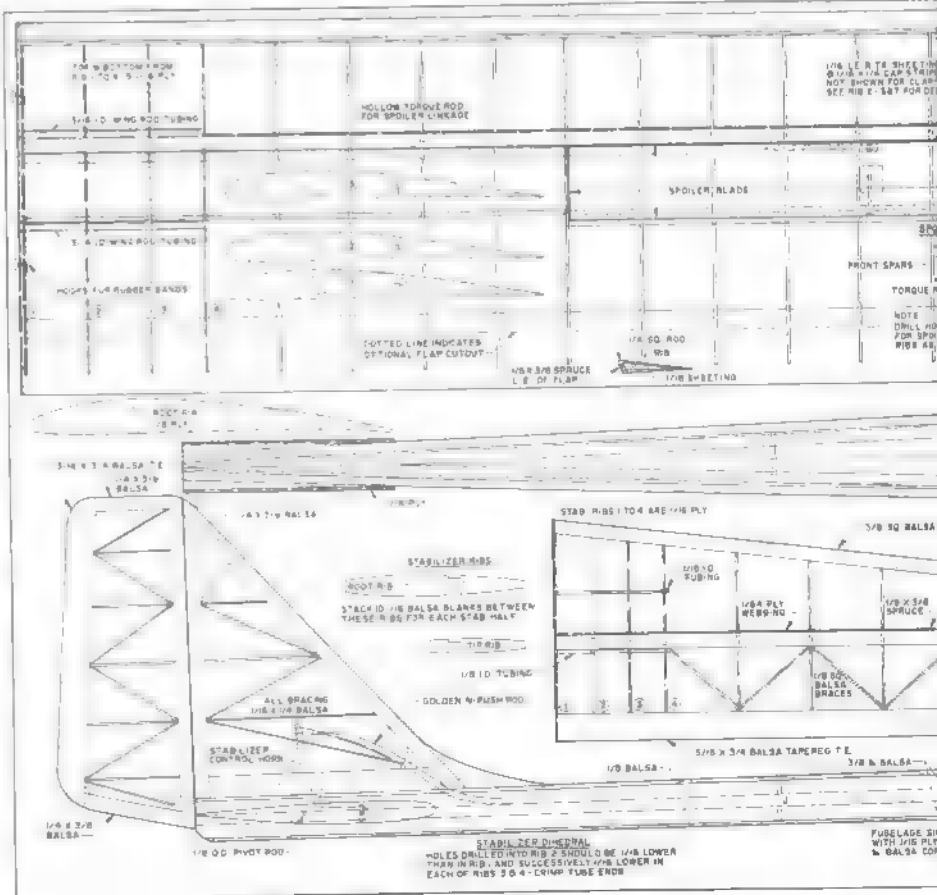
7. Trim the tail end of the sides so as to facilitate their joining.

8. Glue in formers C, D, E, F and G. When dry, glue in H, I, J and pull the tail together.

9. Glue on the root ribs and epoxy (Hobbypoxy Formula 2 here) the wing wire tubing, using wings and wing wires as an assembly jig to ensure perfect alignment of both tubing in fuselage and tubing in wings.

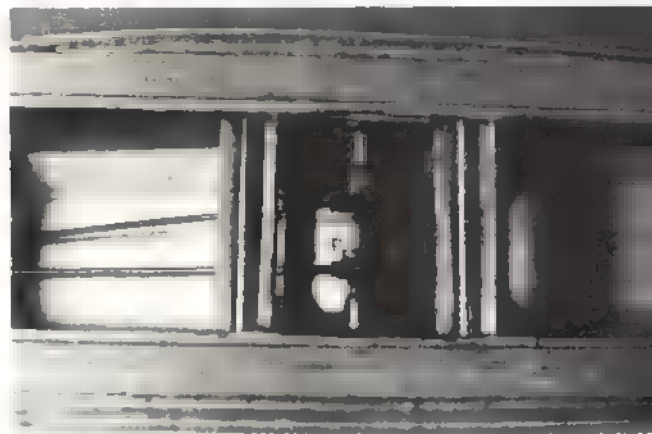
10. Make up the spoiler linkage. Study the plans. Epoxy the square tubing into wing torque rods only after all else is assembled and working, so that the blade opening angle can be set equally in each wing panel. Loosely mount linkage into fuselage and put in 1/8" OD square tubing (2 1/4" long) for test fit. Now epoxy 1/8" ID square tubing into wing torque rod. Make sure no looseness exists and no binding. When satisfied, epoxy the linkage mounts (plywood bearers) to fuselage. Note that there is an angle necessary, due to the 30° dihedral. Leave the wings attached when epoxying this piece in (with the 1/8" OD square tubing inserted so as to align correctly).

11. Glue in former B, drawing the fuselage together. Use masking tape to keep secure while drying.





The torque tube spoiler mechanism is installed relatively early in the fuselage building stages.



The actuating arms are made from brass tubes and missing links.

12. Glue the balsa block front sides to the 1/16" doublers. Also secure the bottom and top front blocks between B and C.

13. Fit and glue the 1/16" ply top (from D to H) and glue on the 3/16" top sheet from D to tail.

14. Fit, insert and epoxy in the Sup-R-Rod. Do it now, before fuselage is closed up.

15. Glue on the 1/8" ply flooring and sheet the entire bottom of the fuselage.

16. Fit, cut and shape the balsa hatch cover.

17. Glue on the front hardwood nose piece.

18. Glue a 1/16" ply stab root rib to each side of fuse. Make sure the mean line is at 0° incidence to the wing. Since the fuselage is tapering at this point, and

you want the stab fillet to be square to the fuselage center line when viewed from the top, it will be necessary to fill with scrap balsa. See the top view of the rear of the fuselage.

19. Sand the entire assembly well and coat with Hobbypoxy Clear, and then two coats of Hobbypoxy filler. Sand wet with 400 sandpaper after each filler coat. Spray with Hobbypoxy color.

#### Stabilizer:

1. Cut out all ribs.
2. Drill holes for tubing in ribs 1, 2 and 3, drilling both ribs No. 1 together, etc. Proper holes will ensure same dihedral as wing.
3. Mark the spars and trailing edge for the rib locations.
4. Glue the ribs to the bottom spars.

5. Glue the leading edge to all ribs.

6. Glue on the top spar. Make sure that the spars fit flush with the tops of all ribs, so that covering will have less drag points.

7. Glue on the trailing edge and sheeting on one side.

8. Epoxy tubing into holes in ribs. (Use one piece of tubing and then cut to

separate stab halves. This will ensure alignment.)

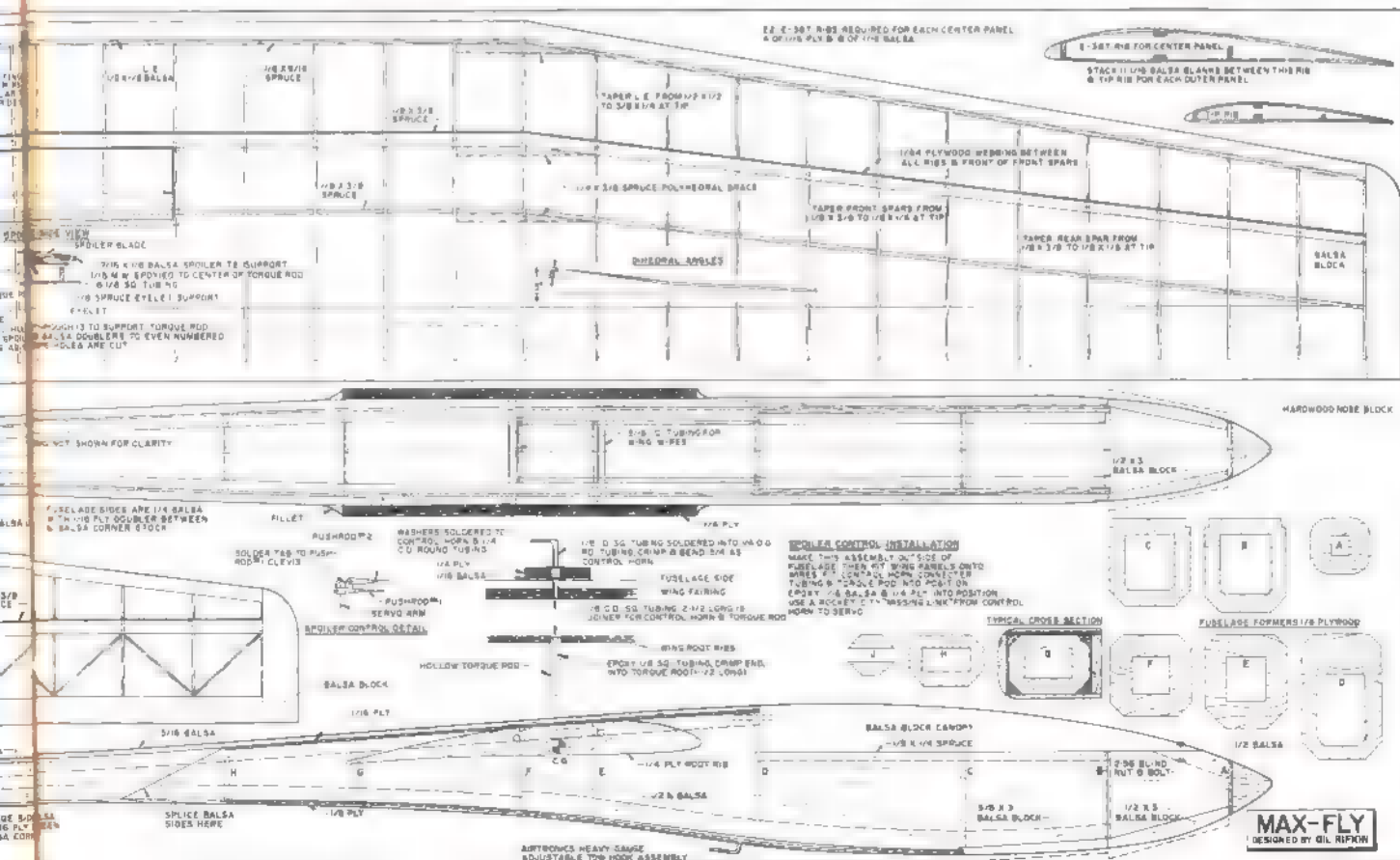
9. Glue on remainder of sheeting.

10. Glue in the 1/8" square balsa bracing.

11. Sand and glue the tips.

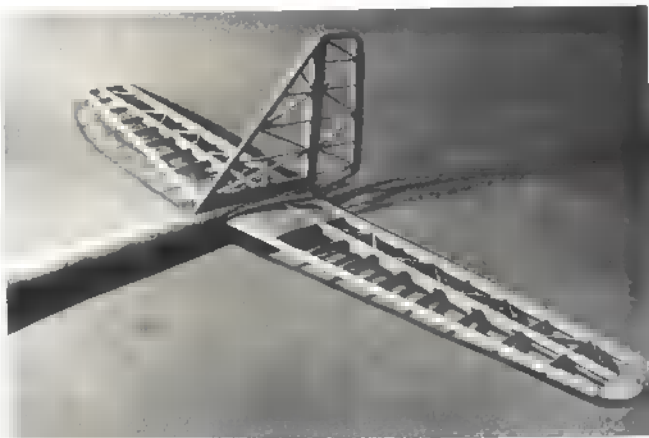
#### Rudder and Fin:

1. Trim the leading edge of 3/16 x 3/4 x 8", and the 1/2" balsa tapered trailing edge stock so that it is square to

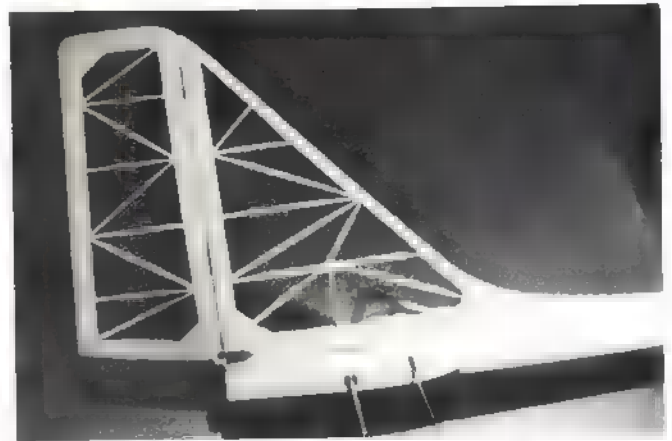


FULL SIZE PLANS AVAILABLE - SEE PAGE 86





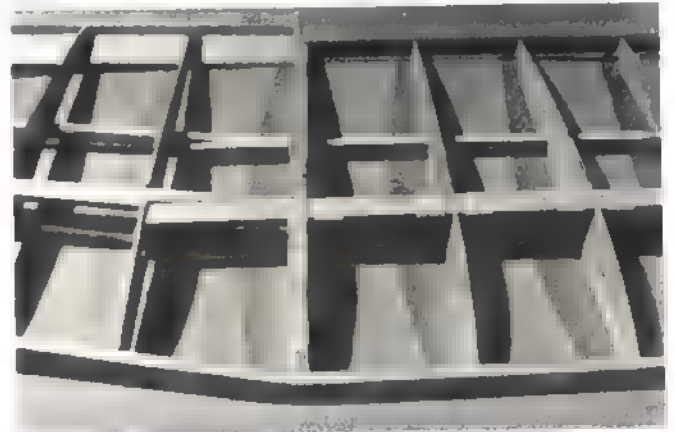
The tail surfaces are built-up for weight economy. Webbing and geotruss structure add strength.



The linkage for the flying stab is concealed in the fin, making for a minimum profile tail assembly. (photo by Josh Titus)



The wing panels follow typical construction techniques. The constant chord center section uses the popular Eppler 307 airfoil, while the tips develop a slight camber.



The polyhedral joint has overlapped spars. The tip hasn't been angled up yet in the photo.

■ center line through the middle of a top view (see plans).

2. Pin or wedge with weights the various pieces of outer balsa to your building board, shimming up the front of the rudder 1/32" and the rear of the rudder 1/16". Shim the bottom cross-piece of the rudder 1/16". Glue all pieces together.

3. Glue in fillets at all corners.

4. Glue in bracing, as shown.

5. Bevel the leading edge of the rudder, and hinge it to the trailing edge of the fin. Do not epoxy in hinges until after covering.

6. Sand to shape.

7. Notch through the center of bottom piece of fin and first brace to allow for free passage of elevator control horn.

8. Cover, hinge rudder to fin, and epoxy to fuselage, making sure that the assembly sits exactly on the center line of the fuselage and is also square to the stab and wing (allowing for dihedral, of course).

9. Cover the wing and stab. MonoKote does a great job and allows a MonoKote hinge on the spoilers, affording less drag than would regular hinge materials.

**Radio Installation:** The width of the Max-fly allows all three necessary servos to be mounted alongside one another, directly in back of Former C. The switch is mounted in front of C, with the receiver and battery in the remaining forward area. The antenna was en-

cased in several straws and run through the fuse, rather than outside. To operate the spoiler efficiently, it was necessary to use a long arm on the servo. If possible, get a piece of radio phenolic board and cut your own servo arm, using a washer between the arm and the screw head to hold it to the servo. The arm should be 3/4" long.

#### Final Adjustments:

1. Towhook used was the Airtronics heavy-duty adjustable. It was installed so that the hook would be located on a line drawn downwards, and 60° forward from a center of gravity at 40% of the chord.

2. My Max-fly weighed exactly 4 lb. 8 oz., with 2 oz. of lead ballast riding in with the battery.

3. First flights indicated that a 1/4" washout at the tips will aid slow turn stability.

4. A vigorous hand launch is alright to test the glide, control effect and general flight stability. Don't open your spoilers unless you are up about 50 feet the first time. They work well and will ding up your plane unless you have some speed to use the elevator and rudder.

**Flying with a hi-start or winch:** Use a strong line and a good hi-start or winch. Max-fly may not be too heavy, but she carries a lot of wing area and will create quite some resistance on tow. Our first flights indicated that she will go straight and true up the tow line. She is ex-

tremely responsive and alive and will remind you of a pattern ship in her ability to hold a line of flight. Set up some easy turns and note that you will have to start easing in opposite control almost as soon as you go into a turn so as to open out into a straight path after the turn. Now put in a little up trim and go into a turn. If she falls off a little, you need a bit more washout at the tips. When properly set up, she should turn in a plane that is quite flat for a glider with a conventional tail.

The first time you try the spoilers you should be at least 50 feet up, and flying either straight towards yourself or away. This will help show whether or not the spoilers are equal in angle opening. Obviously, if the ship goes to one side, that spoiler is creating more braking action, or killing more lift on that side of the wing by being more open than the other.

The second attempt at spoiler operation should also be made at 50 feet altitude or better and after the adjustments were made for opening equally. This should be with the plane moving across your field of view. This will help you see the effect that the spoiler/brakes have on speed and altitude. You can then determine at what angle the ultimate descent should be made. Mark your decision about blade opening angle on your box for reference and possible stop mechanism.

Now you're all ready. See you at the meets!

## R/C MULTI CHANNEL



**THE CONTENDER**—The first all-balsa R/C model you can build in just 8 hrs. Wing Span: 54" Eng.: .29 ■ .60. Kit RC-15

**\$42.95**

**KWIK-FLY III**... World and twice Nats. winner. Designed by Phil Kraft. Span: ■ Eng.: 45 to 61 Kit RC-12 includes jig for true straight wing. **\$54.95**

**R/C NOBLER** Radio version of the winningest stunt model of all time. Wing Span 51" Eng.: .35 to .45. Kit RC-14

**\$34.95**

## R/C SCALE AND STANDOFF SCALE



**S.E.S.a Never** before has a R/C scale model been designed with such attention to the most insignificant detail. Wing Span: 52" Eng.: 45 to .60 Kit RC-13

**\$59.95**

**P-51**... A standoff scale model that only a ruler can tell from a true scale plane. Wing Span: 60" Eng.: .40 to .60. Kit RC-16

**\$52.50**

**P-40**... Now—in answer to your many requests. Span: 60" Eng.: .40 to .60. Kit RC-17

**\$54.95**

## R/C COMPACTS



**HEADMASTER**... America's best R/C trainer, for up to 3 channels. Span: 48" Eng.: .09-.35 Kit RC-11

**\$19.95**

**TOP DAWG**... Single or multi-channel for sport ■ pylon racing. Span: 39.5" Eng.: .049-.15 Kit RC-10

**\$17.95**

**SCHOOLMASTER**... Single ■ multi channel with rudder, elevator and engine control. Span: 39" Eng.: .049-.090 Kit RC-8

**\$11.95**

**SCHOOLGIRL**... Span 32" Eng.: .020-.049 Kit RC-9

**\$10.95**

**SCHOOLBOY**... Span: 29" Eng.: .010-.020 Kit RC-3

**\$7.50**

## SEMI SCALE STUNTERS



**HAWKER HURRICANE**... Span: 42" Eng.: .19-.35 Kit S-51

**\$10.95**

**CURTIS P-40 TIGER SHARK**... Span: 42" Eng.: .19-.35 Kit S-50

**\$10.95**

**TOP FLITE**

**FLYING MODELS**

for those  
who insist on the  
**VERY BEST!**

## COMBAT LINE SCALE MODELS

**SUPER FORM** PREFORMED FUSELAGE SHELLS  
FAST STURDY CONSTRUCTION



**P-40 WARHAWK**... Span: 28" Eng.: .15-.29 Kit S-1

**\$14.95**

**P-47 THUNDERBOLT**... Span: 27" Eng.: .15-.29 Kit S-2

**\$14.95**

**P-51D MUSTANG**... Span: 37" Eng.: .29-.35 Kit S-3

**\$21.95**

## 1/2" WING SPAN SCALE MODELS



... Span: 18" Kit S-20

**HELLCAT**... Span: 18" Kit S-21

**THUNDERBOLT**... Span: 18" Kit S-22

**\$3.95**

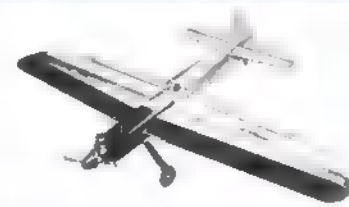
## CONTROL LINE - STUNT PLANE



**REPEATED NATIONALS AND WORLD CHAMP.**

**NOBLER**... Winningest plane of all time. Span: 50" Eng.: .19-.35 Kit N-1

**\$18.95**



**NATIONAL AYS C PLACE WINNER**

**JUNIOR NOBLER**... For expert or novice. Span: 40" Eng.: .15-.25 Kit N-6

**\$11.95**



**PEACEMAKER**... Superform for fast construction, exceptionally durable. Span: 46" Eng.: .15-.29 Kit N-7

**\$13.50**

## FAMOUS FLITE STREAK FAMILY



**NATIONALS  
COMBAT  
WINNER**

**FLITE STREAK**... Combat ■ stunt flying at terrific speeds. Span: 42" Eng.: .15-.35 Kit N-2

**\$9.95**

**AYS C CHAMPION**

**JR. FLITE STREAK**... Span: 31" Eng.: .15-.25 Kit N-3

**\$7.95**

**FLITE STREAK**... Span: 24½" Eng.: .049-.099 Kit N-4

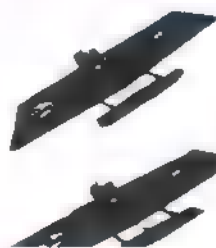
**\$4.50**

**COMBAT STREAK**... Span: 42" Eng.: .19-.35 Kit N-5

**\$9.95**

**STREAK**... Span 33" Eng.: .15-.19 Kit N-10

**\$10.95**



**COMBAT CATS**... Two complete models in ■ box. Span: 39½" Eng.: .19-.35 Kit N-8

**\$10.95**

(2 models)

**COMBAT KITTENS**... Span: 22½" Eng.: .049 Kit N-9

**\$7.50**

(2-models)

**TOP FLITE MODELS, INC.** 145 S. ALAM



# aam tests

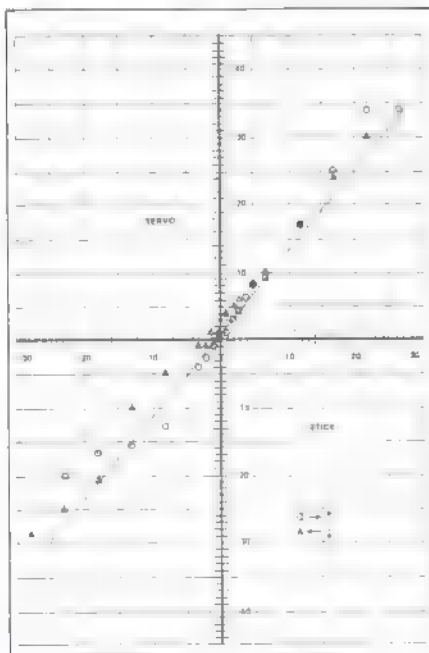
## CANNON GRAND PRIX 6 CHANNEL JIM McNERNEY

This is Cannon's top-of-the-line radio. Several features show additional effort over other Cannon sets tested. The unit came with a certification (signed by Bill Cannon himself) that it had been flown for 32 minutes, including takeoffs, landings, aerobatic maneuvers, and was tested for extreme range, precision, and stability.

**TRANSMITTER:** Housed in a light tan, vinyl-clad, aluminum case with the antenna sloped upward for best radiation pattern. The meter is a true indication of RF output. D&R stick assemblies with cermet pots are used for primary control functions. A switch at the top right is provided for retract operation and another auxiliary channel is operated by a wire-wound pot below and between the sticks. The master/trainer button is located below the left stick assembly. Power is provided by eight 500 mah AA-size NiCads housed in a plastic box behind the RF board. The whole works is held in place by two bolts through the front of the transmitter case. A separate RF board is mounted to the case top and the antenna is bolted directly to it. The charging plug in the bottom of the case also accepts the master/trainer chord. A light is provided to indicate whether the system is charging.

A word of caution: The charging plugs are the same as those used by other manufacturers. The plugs are wired differently, however, so don't try to use other charging equipment or try to use master/trainer with other makes. It won't work and serious damage could result!

**RECEIVER:** The single deck receiver



## SIG "KWIK BILT" CHIPMUNK DUANE W. LUNDAHL

Last fall the Sig Manufacturing Co. introduced a technique in model construction with the "Kwik Bilt" series. The Chipmunk was the first in the series which now includes the P-51. The "Kwik Bilt" technique involves the use of vacuum-formed plastic fuselage halves which disguise what is basically a profile model. The resulting plane is amazing that no one who has seen the finished plane has guessed its ancestry. However, I've had many, many raves on its appearance. In addition to the vacuum-formed fuse halves, there are also wheel pants, tail cone, full engine cowl and wing tips formed of plastic. The fuselage structure consists of a 1/2" thick balsa plank cut to profile shape which is reinforced from the wing trailing edge to the engine mount. This is a complete load-bearing structure of the fuselage. The radio, servos, linkages, and fuel system are now added to this directly and very easily.

The wings are foam core and sheeted, a simple process because of the excellent Sig instruction book. Because of the unique assembly there are no plans, so, and you won't need them. Only after completion of the wing, tail surfaces and radio installation do you mount the exterior fuselage halves. (I

board is housed in a vinyl-clad aluminum case. Deans connectors are used in a three-, two- and one-plug set of blocks for the outputs, with a male plug for the power. The RF uses a double-tuned FET front end with three tuned IF stages plus a crystal filter. The decoder uses two IC's. The antenna is color coded to match the frequency (i.e., red and white for 72.240 MHz).

**SERVOS:** The C-E 2 servo is the larger D&R mechanics with both linear and rotary output. The servo amplifier is a bridge type, but uses all discrete components. There are 13 transistors housed on two stacked boards. Fortunately, there are no through wires so that it is easy to components is easy.

**BATTERY:** The airborne pack consists of four 500 mah pencil-size NiCads, each diode protected to provide a bypass in case a cell opens. The switch harness comes complete with charge plug for easy external access in your model.

didn't see it until after the painting was done!) Because these carry no loads, they are simply mounted using double-stick servo mount foam tape.

The model was finished with automobile acrylic enamel in red, white, and blue. Painting took longer than building, incidentally. The wing surfaces were prepared using surfacing resin and 1/2 oz. fiberglass cloth.

The plane flies well, performing any maneuver a sport flier like me can do. An Enya 60 (I B gives more than adequate power, I should note that the plane handles very well on the ground because of the wide gear track and steerable tail wheel.

Criticisms? Very few and of minor consequence, but the decals were some of the worst I've seen; they tore, cracked and generally frustrated me. The tail cone did not fit as it should; however, it was usable.

My overall impression of the kit is very positive. I think Sig has a great idea in their "Kwik Bilt" construction method.

**Specifications:** Wingspan—64"; Wing area—660 sq. in.; Flying weight—7 lb.; Power—60; Propeller—11" 7/8"; Construction—composite of wood, foam, plastic; Price as tested—\$39.95; Manufacturer—Sig Manufacturing Co., 401 S. Front St., Montezuma, Iowa 50171.

**CHARGER:** An external charger is provided with the AC plug integral to the charger housing. Both transmitter and receiver battery must be charged together in series. When all is assembled properly and the switches are in the right positions, the light in the transmitter will light.

**Comment:** In viewing the stick/servo graph, note that the servo position is always close to the stick movement in spite of having some crisscross of the average lines. This is designed to be Cannon's top-of-the-line system and surely must be their most reliable.

**Specifications:** Pulse width—1.4 ms ± .5 ms; Pulse repetition rate—60/sec.; Trans power input—900 mw.; Receiver sensitivity—3.8 micro volts; Servo thrust—3 lb. 3.5 oz. at 2.25" or 12.9 oz./in. torque; Servo transit time—0.4 sec.; System temperature range—0°-140°F.; Price as tested—\$499.95; Manufacturer—Cannon Electronics, Inc., 13400-26 Saticoy St., North Hollywood, Calif. 91605.



## COX 049 TD and 09 TD DON JEHLIK

The top-of-the-line TD's are of greatest interest to competitive fliers. Their performance record has placed L.M. Cox in a unique position in manufacturing. There are no competitors in the world market!

There are, of course, reasons for this. Remember the "Build a better mousetrap" line? Roy Cox has done just that in a really competitive industry. You see, all the firm has done is design, produce, and market products of highest (a) performance (b) quality (c) availability (d) standards of advertising and (e) value. In addition, Cox has developed uses (markets) for his engines and related items that had not existed previously.

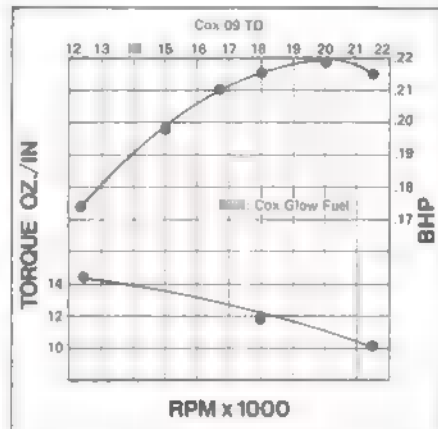
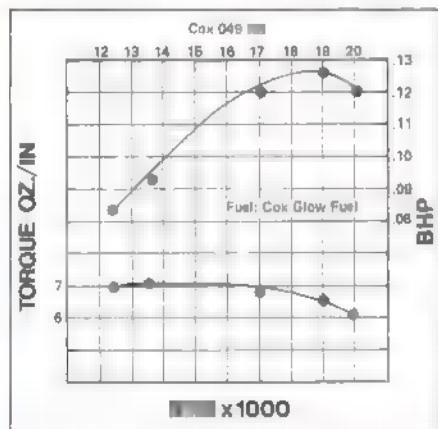
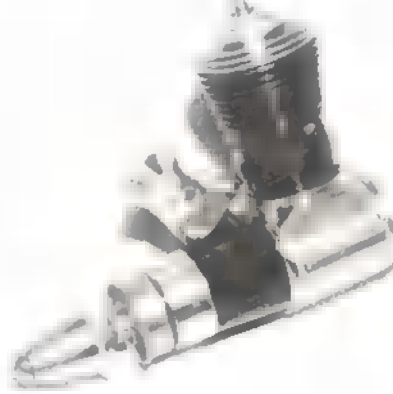
The TD engines in this month's tests need, therefore, no introduction. Of all the engines in my personal experience, they rate highest in every respect. Significantly, quality control

at the factory makes every Cox engine ready to run, clean and free of dirt and metal bits which are so common to almost every other engine I examine.

Break-in for both engines was normal for Cox engines. They ran readily from the first start. Extended running increased power slightly and broadened needle valve settings. 049 and 09 are quite similar in power curves which shows the consistency of Cox design. The 09 developed almost twice the power of the 049.

Both engines should be propped to turn 16,000 rpm or slightly higher on the ground in order to achieve maximum power in flight. The 049 turned a 6 x 3 Cox prop 17,000 rpm. A 7 x 4 seems about right for the 09.

**Specifications:** Price as tested—049 TD, \$16.45; 09 TD, \$18.50; Manufacturer—L.M. Cox Co., 1505 East Warner Ave., Santa Ana, Calif. 92705.



## THE QUICK ONE PAT MURPHY

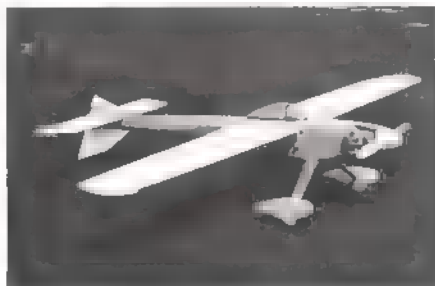
"I shot an arrow in the air and it will come down when I tell it where." The impression of an arrow sailing by is at least one of the impressions that you get when flying the Quick One. The plane is small and has a rather unusual configuration. With a "honking" 40 in the nose, this plane could be used for learning to fly pylon. With a good 29 in the nose for power, it would be a reasonable small-field plane. It is not a trainer.

The kit contains the foam cores and sheeting with machine cut wood parts for the fuselage and empennage. The hardware pack was good and lightweight landing gear included.

The instruction sheet is very good. It lists step by step the method of construction. The Quick One lives up to its name—it builds up very fast.

I covered this plane with Kwik Cote and came up with a four-pound airplane. A Fox 36 was used to move things along.

The one modification that I would recommend would be a full width elevator. The rudder on the bottom fin seems to be quite effective. Aileron throw should be a minimum of 3/8" travel, both up and down. Elevator should travel approximately 30° in both up and down.



The plane is very fast and will slow down and give a good sink rate for landing. It is much too responsive to be a model; however, it can be handled easily by someone with intermediate flying experience.

The Quick One will most definitely cause quite a bit of conversation in your field. Try one, we think you'll like it.

Now if I can just get this arrow to land sooooo gently, right there. . .

**Specifications:** Wingspan—51"; Wing area—382.5 sq. in.; Length—41"; Weight—Approx. 4 lb.; Price as tested—\$34.95; Manufacturer—J.E.M. Enterprises, 521 Bies St., Michigan City, Ind. 46360. (219) 872-7690.



## GRAUPNER HI-FLY STEVE KRANISH

The Graupner Hi-Fly is a high-performance, all-balsa, standard-class thermal sailplane that can be launched by electric power, hi-start, or 049 power pod. It is an excellent kit, with all parts die-cut and machined. The instructions are excellent, including a full-size plan (one panel of the wing and stabilator must be built on the back of the plan sheet), an instruction booklet with exploded views, and radio and electric power installation instructions.

The fuselage is a balsa box with factory-installed veneer doublers forward of the wing TE. The fin is built on the fuselage and contains the stabilator mount. A large nylon bellcrank is provided, and must be permanently built into the structure, thus allowing removal of both stabilator support pins. The hatch is built up from several die-cut pieces of plywood, and is held in place with a dowel in the rear and a pin in the front. The landing skid is mostly plywood, and encloses the one-position wire towhook.

The wing is a twin spar structure with top sheeting, built as two panels. The TE comes notched, and the LE is partially shaped. All ribs come die-cut and marked, although many needed a slight trimming for a proper fit. The plywood root rib is marked for drilling three mm back from where the required holes must be, and this must be corrected. The wing may be built with either straight dihedral, as I did, or with polyhedral. Parts are supplied for either version, and in both all spars, LE, etc., must be spliced at the taper change. There is only one steel spar joiner pin, in addition to two alignment dowels. Wing attachment is by rubber bands, although anything but a perfect landing will cause the wing panels to shift, and conversion to nylon bolts would eliminate this problem. An undercambered airfoil is used to provide better performance.

The stabilator is a two-panel, symmetrical airfoil surface, supported by two metal pins. All parts come die-cut, and the ribs have tabs on them to facilitate building on a flat board. Optional geodetic ribs for the stabilator, fin, and rudder greatly increase rigidity with little increase in weight.

The fuselage has enough room for installation of most radio gear. My AAM Commander used a 475 mah square pack. The plane required two oz. of lead to balance.

All test flying was done from a 400-ft. hi-start, which provided three-minute flights without thermal help. The Hi-Fly is very maneuverable and quick to respond, even in a strong wind. A turn can be reversed quickly, even in a wind, and turn response is about the same in a climb or dive. Tight circles can be made with little loss of altitude. Crosswind handling is good, and overall handling and performance is excellent.

**Specifications:** Wingspan—90.5"; Wing area—620 sq. in.; Airfoil—9% wing with undercamber; Weight—33.5 oz.; Price as tested—\$49.95; Manufacturer—Johannes Graupner; Importer—Midwest Model Supply Co., 6929 W. 59th St., Chicago, Ill. 60638.



# PAINT FOR PERFORMANCE



The author's Cutlass, Yankee and Jet Star ■ a complementary color scheme.

Visual disorientation accounts for a lot of unnecessary pilot errors. It's the proverbial situation of a fellow painting himself into a corner. Plan a good paint scheme and fly better. / by Bob Noll

"Why should I go to the trouble of painting my plane with a fancy paint job? It won't help it fly any better!"

How many times have you heard someone make this statement? Maybe you said it yourself. A good color scheme, with well-defined trim and contrast, definitely can help the plane fly better. Why? Because you can see it better.

Nearly everyone, even the beginner understands the need to build a true plane, without bends and warps, and to pay close attention to the installation of equipment. But many RCers don't realize that their ability to ■ the air-

craft easily, and to distinguish its flying attitude at all times, is a vital element in the closed loop between the transmitter and the plane.

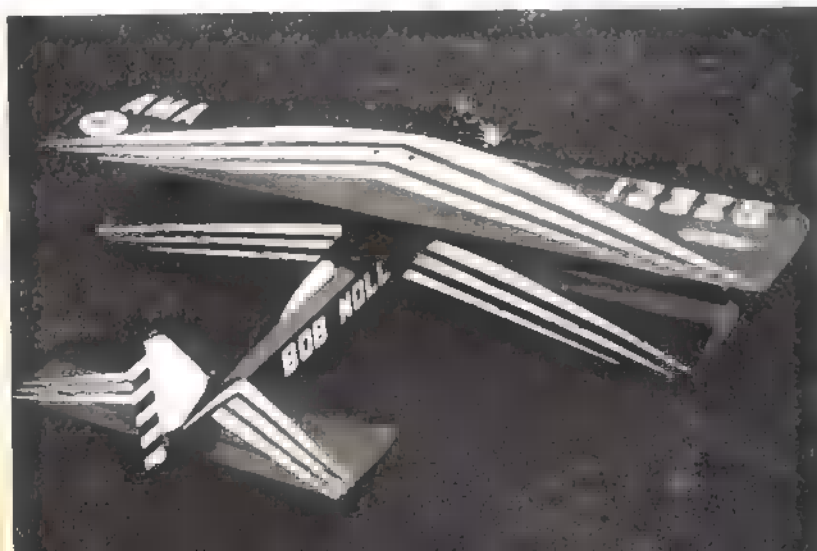
I'm sure that we have all witnessed the flier who got himself into trouble because he wasn't sure of the attitude of the plane, only to claim that his radio failed. . . he was sure he was giving the correct command ■ it spiraled into the ground. Although this usually only happens to the beginner, there are benefits that can be realized by the experienced and competition flier if his visual communication with his plane is strengthened.

What can be done to amplify the ability to clearly see the plane and distinguish its flying attitude to the greatest degree? Very simply, the paint trim color and design can help solve this problem.

Personal experience, ■ well as discussions with other RCers, has revealed several basic requirements that a good color scheme and trim design must have. They are: (1) a base color which is easily seen by your eyes, (2) at least two colors which provide maximum contrast (white trim is excellent if a dark color is chosen for the base color), and (3) a trim design which clearly accentuates the wing and tail surfaces. Much has been written about the first two items, but little emphasis has been placed upon the third. It is the trim design which I feel has been grossly overlooked.

If you are not one with an artistic touch, simply apply a sunburst or leading edge stripe to the wing. Large bold stripes stand out well, and are best used at the wing tips. I have found that trip stripes aid tremendously in picking up the attitude of the plane in a turn. Also, for the competitive fliers, accentuate the wing leading edge with narrow stripes, so that those wings can be kept level upon entering maneuvers—a factor of primary importance to the execution of good maneuvers.

(Continued on page 92)



The white stripes ■ wings and stab add ■ dimension of forward speed to the otherwise squarish lines of this bipe. The contrasting fin and rudder make a good visual reference point. Bipes ■ get awfully confusing in the sky.

# YANKEE

The perfect model! A guaranteed winner? The secret key to the top? / BY JOHN FARR

**D**on't believe it. There is no pattern, either, that can provide instant success and overcome a lack of flying talent on the part of the pilot. The answer, what you may think is a made up, all-time pilot's dream, 5% plane and 5% skill, this in reality is a most unrealistic proposition. It is most probable that as much effort as you put into the plane that we can control. The only way to succeed with a good, honest airplane is the answer.

Of course, there are many good plane designs known around the world, such as the Tiger, the Mustang, the Cutlass, Kaos, Banshee and others. In the hands of a good pilot, all these planes can be turned into winners. This is because they are good designs with very distinct characteristics.

The Yankee is an attempt to achieve a plane which contains both speed and agility as well as a high degree of maneuverability. It is a plane that







**ABOVE:** A clean design, the Yankee features proven concepts in solid construction.

**LEFT:** Practice, practice, practice with a good, honest airplane is the only key to success in pattern. The Yankee was specifically designed for longevity and reliability.

**BELOW:** Flowing, unbroken lines, accentuated by a striking and spirited paint scheme are essential for high points—the judges pay more attention to a sharp-looking plane.



used these terms, let me explain what I mean.

Soundness in design has to do primarily with functionality and integrity of construction. Good basic construction practices, proven reliable over years of experience by other successful designers and myself, have been applied to the Yankee design.

Honesty in flying characteristics relates to the plane's predictability, with a primary emphasis on repetitive duplication and absence of the unexpected. It's hard enough to master the pattern maneuvers without having to contend with a plane that has some nasty idiosyncrasies.

Smoothness is self-explanatory, but a factor not given enough thought with respect to the plane. Although the pilot's "habits" contribute significantly to the smoothness of flight, the plane, design, and setup are also key factors.

The Yankee definitely meets the criteria mentioned above. It has performed well for me during the contest season, during which time the design was refined through some changes.

As I am not an aeronautical engineer, I can't take credit for developing exotic new airfoils and other aerodynamic breakthroughs in the Yankee. However, being a competitive modeler for quite a few years, I have built this design around some basic good experience that I have had with a Jet Star Mk7 by Ed Keck, and the famous Cutlass Supreme by Don Coleman. In addition to having flown these two designs in competition, I have had the opportunity to fly some of the other popular designs over the past few years, and feel that the Yankee is capable of performing with the best.

Although I will provide some of the significant design features of the Yankee, I want to impress you with the need to build an accurately true and well aligned plane in order to take advantage of the design characteristics. Every competitor who is at, or near, the winners' circle understands the need to have a plane that is exactly true and totally free from warps, surface irregularities and misalignments. And believe it or not, it isn't much more work to do the job the right way; the benefits will be impressive. Each plane I build reaffirms my awareness about the importance of building accuracy.

Now let me go into some of the design features in the Yankee. Both the Jet Star Mk7 and the Cutlass Supreme have the wings 1" below the thrust line. This configuration has worked well in both these designs, so it was retained for the Yankee. Some designers argue that the wing is harder to see as it is moved up toward the thrust line since, in flight, it becomes masked by the fuselage. I have not experienced this problem, however, as I have always used a contrasting strip along the entire wing leading edge to make it stand out. Moving the wing closer to the thrust line can present equipment installation and landing gear problems. The Yankee uses a compromise and, besides, 1" is easy to measure. The stab is 1" above the thrust line, which places it adequately above the wing, thus preventing turbulent air over the wing from effecting the pitch sensitivity and elevator control during the landings.

The nose and tail moments of 14" and 28" respectively are quite conventional, providing a ratio of 1:2. The nose moment may appear to be much

shorter, because of the straight trailing edge wing planform.

Speaking of the wing, its area is 700 sq. inches with a span of 64" and a mean chord of 11.4", yielding an aspect ratio of 5.6. The root section is 15% symmetrical, and the tip section is 15% semi-symmetrical. Leading edge sweep is 7° and the trailing edge is straight, which results in a swept mean chord line. The reason for the straight trailing edge planform is very simple. It adds to the effective wing dihedral in both upright and inverted flight. The need for built-in dihedral is therefore reduced with this configuration, which is an advantage in rolling and inverted maneuvers, such as outside loops. A slightly lifting section is used at the tips to prevent tip stall, so common with swept wing designs when the angle of attack is increased during landings.

The Yankee wing has a sharper leading edge than either the Jet Star or the Cutlass Supreme. This was done to increase pitch sensitivity, in order to have a plane that grooved better than the more blunt leading edge planes. It is true that a blunt leading edge wing provides softer response to pitch control; however, the tremendous resolution of our current servo provides smoothness without the need for the blunt leading edge wings. One of the paramount improvements realized in the Yankee is the way it "locks in" on a heading and stays in the "groove."

The horizontal stabilizer has an area of 167 sq. inches which is 24% of the wing area. It uses 12% symmetrical section, which makes elevator control very smooth but positive, even at extremely slow landing speeds.

One problem with the Yankee, as it

was originally built, was that rudder deflection caused a rolling tendency. This is very undesirable, since the effect of rudder control should be pure yaw, so as not to harm the Four-Point Roll, Slow Roll and Figure 8 maneuvers. In order to obtain the desired yaw, the rolling effect of the rudder should be equal and opposite to the rolling effect of the dihedral.

There are two approaches to solving this problem. One is to change the center of pressure of the rudder/fin combination by moving it farther above the roll axis. The other is to reduce the dihedral.

Making a new rudder with a constant chord is easier than cutting up a wing, so this approach was taken first. This change was made by a good friend and competitor Larry Detwiler, who was also flying a Yankee, but the results were less than satisfying. The theory appeared to be correct, since the roll effect of the new rudder with a higher area was decreased; however, not enough to meet our objective.

The next thing to do was reduce the dihedral. After considerable research and deliberation, I was convinced that it had to be done. Several nights were consumed carefully planning out the "operation" and finally, the first incision was made. As it turned out, the job was done in half the time it took to think about it. The dihedral was reduced to half of its original amount.

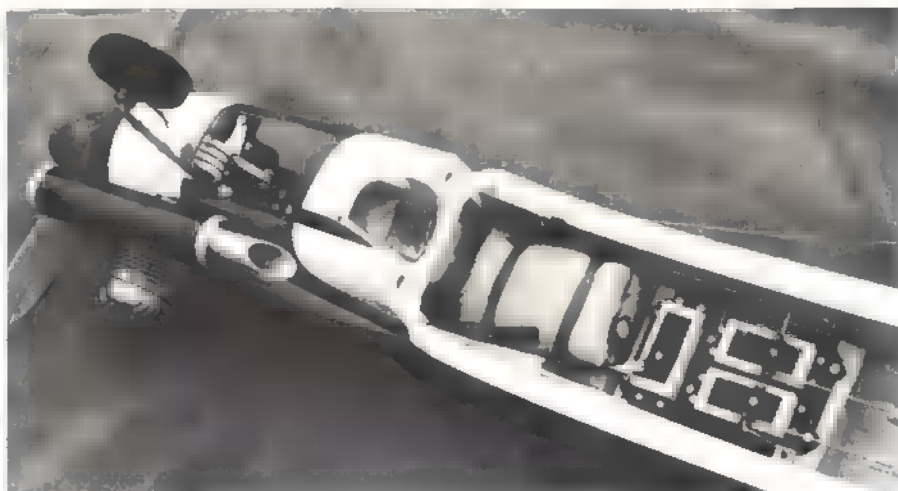
You can probably imagine how anxious I was to get out to the field and find out whether the operation was a success. Well, the results were tremendous. Not only were the Four-Point and Slow Roll maneuvers easier to do, but the Figure 8 showed significant improvement also. One fear, however, was how the reduced dihedral would effect the tracking in loops. Fortunately, I could see no difference and, in fact, crosswind loops were better since rudder corrections were more effective.

One complaint I had with the Cutlass Supreme was its desire to weather-vane in a strong crosswind. Others have also commented about this problem, and it is caused by the large lateral tail area. Therefore, the Yankee was designed with less lateral tail area. As a result, the crosswind characteristics are very acceptable. The lateral area in front of the CG was also increased slightly for the same reason.

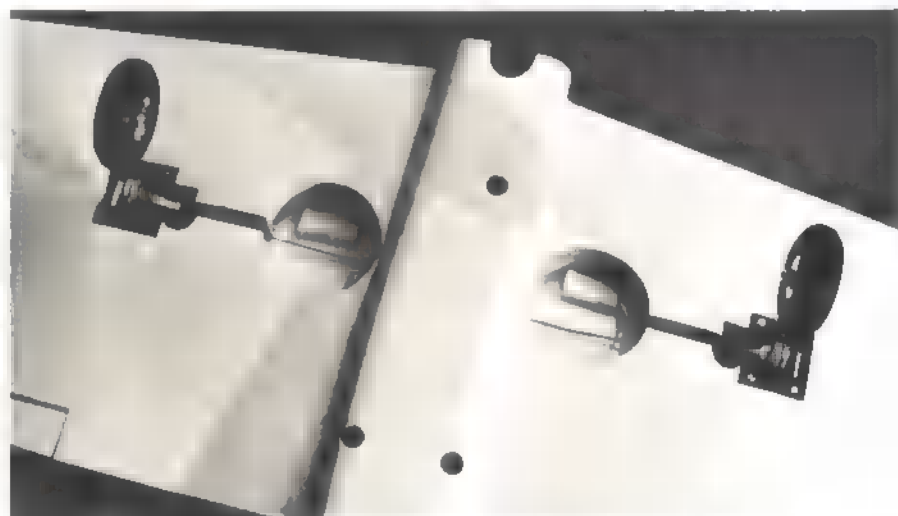
Now let me discuss some of the construction features used in the Yankee, and explain why they are used. I believe they contribute to a "sound" design, and most of them can be applied to any plane design.

Starting at the front, you will notice that the engine is side-mounted and on maple beam mounts. Both these things were done to reduce vibration, a culprit that can mean disaster if it is not controlled. By side-mounting the engine, the vibration forces are absorbed adequately by both the wing and the fuselage. The maple beam mounts are tied into the fuselage sides with pine filler blocks and to the top nose block, so

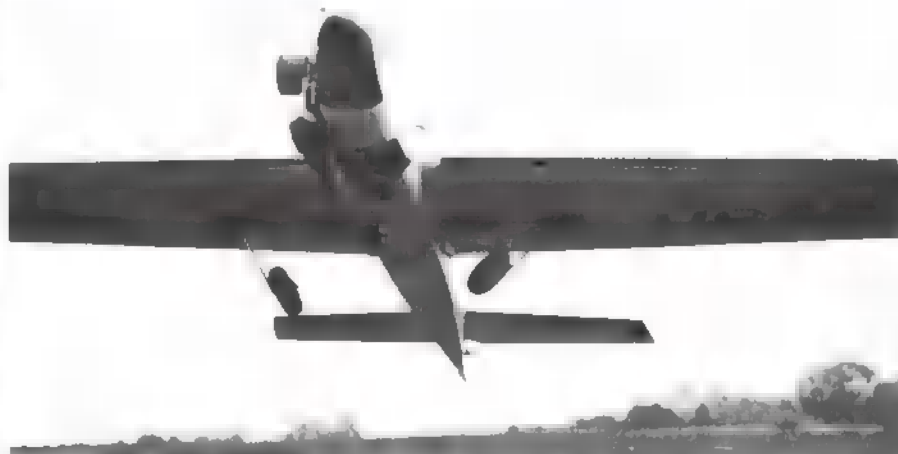
(Text continued on page 92)  
(Plans on following page)



Typical installation.



Margarine containers make simple wheel well bottoms. Foam rubber strips absorb vibration. The hole in the belly pan is for access to the nose gear bellcrank.



ABOVE: Up, up and away. A single 180° servo and an unique linkage retract the gear. LEFT: The Yankee in action.





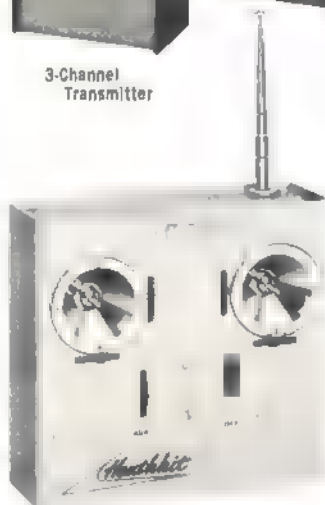


# 3, 4, 5, or 8 channels — Heathkit Systems give you more for your R/C dollar

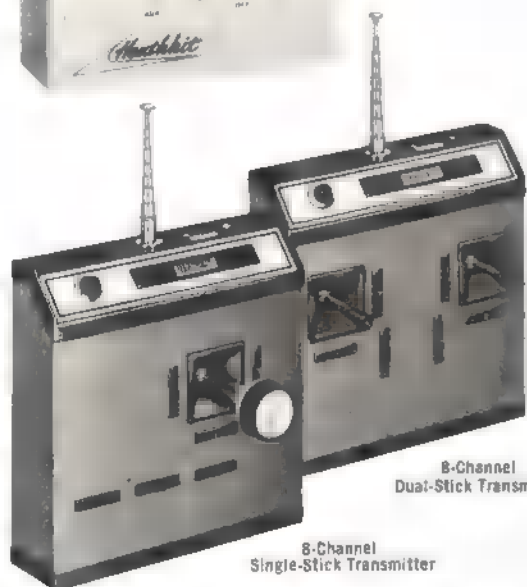


3-Channel  
Transmitter  
with 4th channel  
option installed

3-Channel  
Transmitter



Heathkit "Full-House"  
Transmitter



8-Channel  
Dual-Stick Transmitter

8-Channel  
Single-Stick Transmitter

## Heathkit 3/4-Channel "Convertible" System starts ■ 139.95\*

The Heathkit GDA-1057-series system starts with a sleek, slim transmitter with single-stick control and handy, adjustable hand strap. A simple modification kit converts to 4-channels any time you're ready. System consists of 3-Channel Transmitter; Receiver; nickel-cadmium Battery Pack with external charger and positive connector block hook-up for receiver ■ servos; two Miniature, Sub-Miniature or Standard Servos. System prices start at \$139.95\*, depending on your choice of servos.

## The popular Heathkit GD-19-series puts your own "full-house" system on the air for only . . . 199.95\*

Deal yourself a full-house system complete with Kraft-stick control, built-in charging circuitry, and features found in ready-mades costing up to \$100 more. System consists of Kraft-stick Transmitter with battery & charging cord; Receiver; Receiver Battery Pack; and four Standard Servos... all for just 199.95\*.

## Heathkit 8-Channel System comes with single or dual stick control . . . from 259.95\*

The GDA-405-series brings you 8 independent channels in your choice of single or dual-stick format, trainer link-up capability with override button, switch selectable adjacent channel, and a long list of other top-flight features. System includes Single or Dual Stick Transmitter; Receiver; Battery Pack; choice of any four Miniature or Sub-Miniature Servos. Both systems represent a \$34.90 savings over ordering components separately...and include all batteries, a retail value worth up to \$39.00. Dual Stick System is 259.95\* complete; Single Stick System, 279.95\*.

Heathkit 3, 4, ■ and 8-Channel Systems are available on all R/C frequencies. Adjacent channel available on 8-Channel System except when specifying 75.640. If you're the kind of R/C buff who takes as much pride in his electronics as he does in his model...there's ■ Heathkit system that's right for you. Send for your free catalog, today.

**Send for your FREE Heathkit Catalog!**

**HEATHKIT ELECTRONIC CENTERS —**

Units of Schlumberger Products Corporation  
Retail prices slightly higher.

ARIZ.: Phoenix; CALIF.: Anaheim, El Cerrito, Los Angeles, Pomona, Redwood City, San Diego (La Mesa), Woodland Hills; COLO.: Denver; CONN.: Hartford (Avon); FLA.: Miami (Hialeah), Tampa, GA.: Atlanta, ILL.: Chicago, Downers Grove; IND.: Indianapolis; KANSAS: Kansas City (Mission); KY.: Louisville; LA.: New Orleans (Kenner); MD.: Baltimore, Rockville; MASS.: Boston (Wellesley); MICH.: Detroit; MINN.: Minneapolis (Hopkins); MO.: St. Louis; NEB.: Omaha; N.J.: Fair Lawn, N.Y.: Buffalo (Amherst), New York City, Jericho, L.I., Rochester, White Plains; OHIO: Cincinnati (Woodlawn), Cleveland, Columbus; PA.: Philadelphia, Pittsburgh; R.I.: Providence (Warwick); TEXAS: Dallas, Houston; WASH.: Seattle; WIS.: Milwaukee.



|  |             |                              |
|--|-------------|------------------------------|
| <b>COMPANY, Dept. 80-9</b><br>Benton Harbor, Michigan 49022  |             | <b>HEATH</b><br>Schlumberger |
| <input type="checkbox"/> Please send FREE Heathkit Catalog.  |             |                              |
| <input type="checkbox"/> Enclosed is \$_____, plus shipping. |             |                              |
| Please send model(s) _____                                   |             |                              |
| me _____   |             |                              |
| Address _____  |             |                              |
| City _____   | State _____ | Zip _____                    |
| *Mail order prices; F.O.B. factory RC-107                    |             |                              |
| Prices ■ specifications subject to change without notice.    |             |                              |



# new products checklist



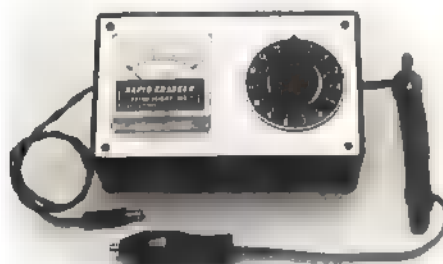
**Peerless/Cirrus 3000.** Startling RC sailplane is close to full-scale, and has a 10-foot wingspan. Designed for two-channel radio, the glider can be modified to use up to six channels. Construction has been simplified for the beginner, yet performance is exceptionally high in both slope and thermal soaring. The front half of the fuselage and major wing parts are injection-molded A.B.S. plastic, and rear half of fuselage is vacuum-formed A.B.S. Kit includes all necessary metal parts, and die-cut and shaped balsa wood. \$99.95. Peerless Corporation, 3919 M St., Philadelphia, Pa. 19124.



**Tidewater Hobby/Counterpart.** Simplified pattern design—ideal for the A&B patterns, this kit is all wood, and is for 40-size engines. Ship has a 56" wingspan and weighs 4½ to 5 lb. with four-channel control. Accessories such as landing gear, canopy, fittings, linkages and pushrods are included. Easy, quick assembly. \$49.95. Tidewater Hobby Enterprises, 4118 Middle Ridge Dr., Fairfax, Va. 22030.



**Allied Hobbies/Integra.** Versatile pattern and sport flying design has been in development for six years to achieve the best design configuration. The airplane has a 70" span, and is for 45 to 60-size engines. The kit has balsa sheeted foam core wings, and an all-balsa fuselage and empennage. This easy building airplane is made even easier with complete building instructions. Many accessories are included. \$67.50. Allied Hobbies, 8655-2 Belford Ave., Los Angeles, Calif. 90045.



**Astro Flight/Rapid Charger.** For electric-powered flight enthusiasts, this deluxe rapid charger provides a safe and reliable method of quick charging the Astro 5 and Astro 10 batteries while flying out at the field. The charger conveniently plugs into an auto cigarette lighter receptacle. A built-in ammeter allows you to determine both the condition and state of charge of your batteries. The timer will automatically cut off the charging process at any preset time up to 15 minutes. Price is \$24.95. Astro Flight, Inc., 13377 Beach Ave., Venice, Calif. 90291.



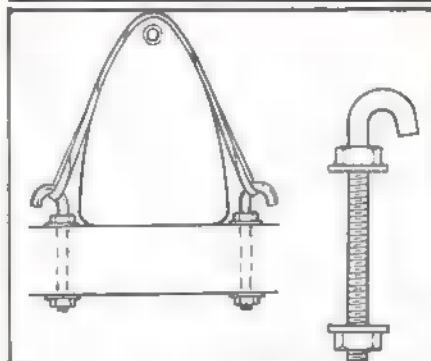
**T H/Jacker.** New two-four channel slope soaring design is capable of flying the full AMA Pattern, and flies as well inverted as it does right-side up. The kit features a seamed white gelkote fuselage, plus foam wings and balsa sheeting. The new wing design allows flying in winds varying anywhere between five and 50 miles per hour. All hardware is included in the kit. Price is \$49.95. T H Enterprises, N. 7025 Stevens, Spokane, Wash. 99208.



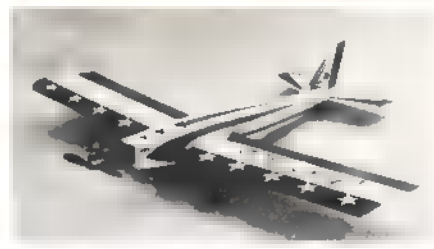
**Pro Model/P-51 QM.** Fast quarter midget racer has clocked times under two minutes on the standard two-mile course. The fiberglass fuselage and foam wing kit also includes such extras as an aluminum motor mount designed for the K&B 15, plus propylene hinges and full-size plans. Wing area of this kit is 309 sq. inches, with a total weight of 1½ to 3 lb. Price is \$34.95. Pro Model Products, Inc., P.O. Box 5182, Ft. Wayne, Ind. 46805.



**Royal Publications/AirCam Series.** Great for the stand-off scale and scale modelers, these new publications contain a wealth of material on specific aircraft, and various groups of aircraft, from World War II. Over 50 books are available in the series, and each book contains over 200 full-color and black and white photographs, and diagrams of the popular aircraft. Printed on heavy gloss paper, they have an extra large format of 7½" by 9½". Books are durably bound, and sell for \$3.95 each. Royal Publications, Inc., Box 358, Denver, Col. 80201.



**Goldberg/Long J-Bolts.** New item especially useful for holding on U-control tanks are these extra long 1¼" J-bolts. Designed to be used on profile fuselages, a package of four bolts, eight nuts and eight washers complete the package. The bolts will also come in handy for many applications in RC and free flight models. The complete package of four bolts sells for \$.59. Carl Goldberg Models, Inc., 4734 W. Chicago Ave., Chicago, Ill. 60651.



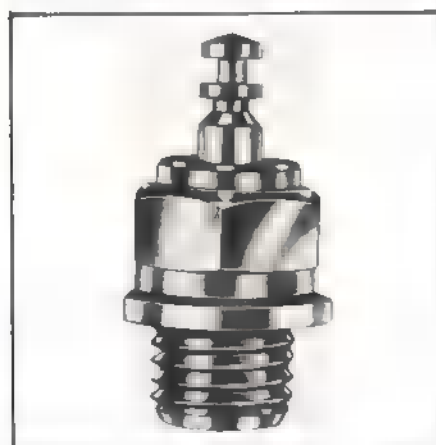
**Glen Spickler/Quickie 500.** The original 500 cu. inch 40-size engine club racer and sport flyer published in AAM is now available in an easy-to-build kit form. Its design permits sport fliers to participate in exciting racing contests without spending a long time building and finishing. Airplane is also excellent for fun type events. Plane is constructed of balsa and plywood parts for extra strength and fast building. \$39.50. Glen Spickler Radiomodels, 4208 Santa Cruz St., Bakersfield, Calif. 93307.



**Westlake/Turnaround Pulley.** The ultimate in design simplicity, this new glider winch turn-around pulley eliminates any possibility of line tangling. The unit features a gold anodized aluminum channel for strength and durability. Complete assembled unit sells for \$13.95, postpaid. Aluminum tow winch are also available. Westlake Manufacturing, Inc., 2205 Hollywood Way, Burbank, Calif. 91505.



**Competition Models/Easy Riser.** First endeavor into RC kits from a manufacturer well known for fine free flight kits, is this slope thermal flying RC glider. The Easy Riser is an all-balsa kit with die-cut ribs and plywood parts. All hardware and "Crystal Cover" covering are included in this kit. The ship a span of 86" with a length of 43", yet weight is only 25 to 30 oz. for good low lift performance. Wing has polyhedral and tail has moving surfaces. \$39.95. Competition Models, Inc., P.O. Box 8012, Long Beach, Calif. 90808.



**OPS/Glow Plugs.** These 1.2 volt glow plugs are designed especially for performance engines where high nitro fuels are used. The cold version is especially for using tuned pipe exhaust systems, and pylon racing engines. Price is \$1.60 each. A hot glow plug is also available for aerobatic RC motors. From Shamrock Competition Imports, P.O. Box 26247, New Orleans, La. 70126.



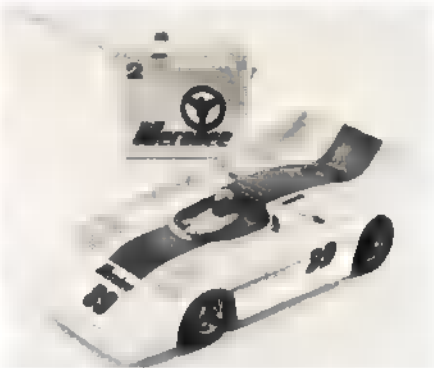
**Soaring Products/Thermic Sniffler.** This rate-of-climb sensor the up and down motion of your RC glider in a sensitive range of a few inches per second. You can "hear" thermals the sniffler sends an audio tone to the ground through the radio link. A rising tone means "up," and a descending tone means "down." Two models are available: a standard model measuring 1" in diameter and 3 1/4" long, and a skinny model 1 1/2" in diameter and 7" long. Weight is approximately 1 oz. Thermic Sniffler sells for \$79.00, and a monitor receiver sells for \$24.00. A combination of the two is \$94.00, postpaid. Soaring Products, Box 117, Kensington, Md. 20795.



**Bridl Hobby/Quik Strips.** New accent striping tape is available in eight colors: Red, Blue, Orange, Yellow, Black, White, Gold and Silver. This tape follows compound curves very easily and is packaged so that the tape will not unravel you the tape. Four common sizes are produced: 1/16, 1/8, 3/32, and 1/4 inch. Look into this tape for the final trim on your airplane, car or boat. Prices vary from \$0.00 to \$0.00. B&E Enterprises, 1611 E. Sandison St., Wilmington, Calif. 90744.



**Lenco/100 Helicopter.** Len Sabato's most recent design has been kitted with many unique features incorporated. The kit is simple to build with all major mechanical components pre-assembled, ready to bolt in place. The tail-boom is a foam core covered with balsa, and body is pre-cut plywood. Design uses a 60-size engine, and four-channel control. Rotor head is fully adjustable and can be set fully rigid, semi-rigid or completely articulated. Price is \$285.00, postpaid. Lenco Products, 9219 First St., Buchanan, N.Y. 10511.



**JoMac/Alfa 1/12th Scale.** Jerobee's deluxe, top-of-the-line model is this Alfa car with many racing features. Car includes aluminum flywheel, one-ounce tank, racing pan, bumper, special tires, heat-sinks, and a Cox Tee 049 engine. Available in two versions: ready-to-run, with radio for \$149.95; or the car, less radio, for \$59.95. JoMac Products, 12702-A N.E. 124th St., Kirkland, Wash. 98033.



**Hoja/Pro-Flyte Caddy.** Light, convenient and, most of all, economical field box is constructed of a high-grade, white lined corrugated carton stock. The box is designed to carry much more weight than an RCer would normally carry, and it has compartments for all essential flight accessories such as batteries, electric starter, gallon of fuel, tools and parts. A special compartment is provided for the transmitter, which allows it to be operated without removal, and to hold tightly for transportation. Price of this caddy is \$2.98. Hoja Mfg. Co., P.O. Box 40116, Indianapolis, Ind. 46240.



**Soarcraft/Centurion II.** This updated standard class sailplane design has excellent thermal ability for its size, yet can be flown with ease in windy conditions. The kit construction features a fiberglass fuselage with built-up wing and empennage. A new, simplified wing attachment method uses nylon screws for crash protection and minimum drag. Span is 100" with 618 sq. inches of area. Flying weight is approximately 28 oz. \$49.50. Soarcraft Products, 12446 Palmtag Dr., Saratoga, Calif. 95070.



# SIG<sup>®</sup>

## CONTROL-LINE CONTEST

**SUNDAY - SEPT. 1, 1974**

### REGISTRATION:

8 A.M. - 10 A.M.  
Or In Advance

### CONTEST:

10 A.M. - 5 P.M.

A.M.A. Sanction 296

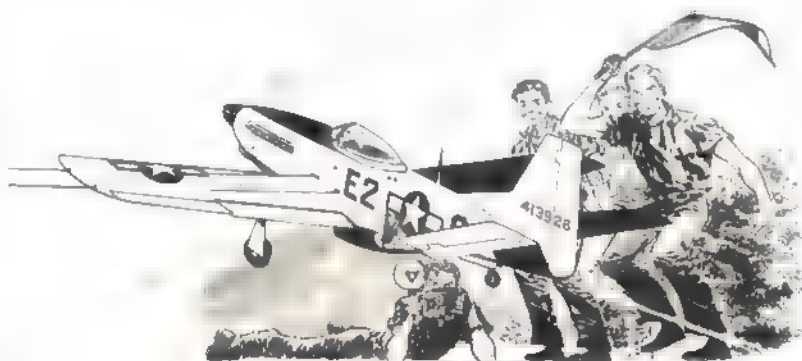
AMA CONTEST DIRECTOR  
HANK POHLMANN  
401 S. Front St.  
Montezuma, Iowa 50171

### ALL EVENTS OPEN CLASS

STUNT  
FAST COMBAT  
STANDOFF SCALE  
SLOW COMBAT

## SIG FIELD

**MONTEZUMA, IOWA**  
(2 Miles South On U.S. Highway 63)



Send \$1.00 Today for  
**SIG'S BIG NEW CATALOG!**  
**The Modeler's Wishbook™**

No Postage Required When Ordering Catalog Alone!

IT'S READY! SIG'S ALL NEW FALL AND WINTER CATALOG FOR 1974! Over 256 pages devoted to model airplanes, kits, supplies, tools and related items. Many pages are in full color. This big new catalog features the famous SIG LINE of kits and supplies, plus practically all other lines available.

For sale at your local hobby shop or send \$1.00 today for your copy. NO MODEL BUILDER CAN AFFORD TO BE WITHOUT IT!

**ORDERING  
INSTRUCTIONS**



**SEE YOUR DEALER FIRST!** If he will not supply you, then order directly from our plant. We will ship promptly. To Order, please add \$1.00 for postage and handling in the U.S. Canadian orders please add \$1.50. Minimum order is \$1.00. Please remit by bank draft, check or money order. Print your name and address plainly. Sorry, no C.O.D. shipments. All prices subject to change without notice.

**SIG MANUFACTURING CO., INC**  
401 S. FRONT STREET  
MONTEZUMA, IOWA 50171

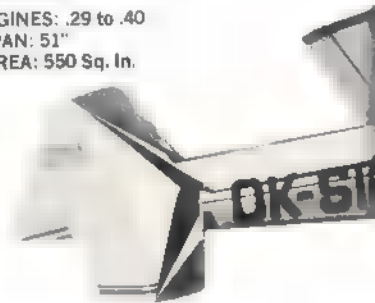
# CONTROL

## Semi-Scale Control Line AKROBAT

Designed and Flown

### SPECIFICATIONS

FOR ENGINES: .29 to .40  
WINGSPAN: 51"  
WING AREA: 550 Sq. In.



Czechoslovakia's Zlin Akrobat has been a star performer in full-scale World Aerobatic Competition for years. Mike Stott has blended the classic, functional lines of this great aerobatic design into an ideal model for control line stunting. Fast construction with wing loading for top notch flight performance.

### Easy Access to Engine,

Formed Plastic Engine Cowling  
Molded Plastic Canopy  
Formed Torsion-Bar Landing Gear  
Lead-out Wire

Heavy-Duty Balsa  
Plated Flap Hinge  
Nylon Elevator  
Complete Hardware

## AKROMASTER

### THE BIGGEST LITTLE STUNT

...

WING SPAN: 34"  
WING AREA: 250 Sq. In.  
For .15 to .25 cu. in. Engines



**SIG**

KIT CL-20

**\$5.95**

### KIT FEATURES:

Shaped Fuselage  
Shaped Leading and Trailing Edges  
All Remaining Parts are Die-Cut Balsa or Plywood  
Shock-Absorbing Landing Gear  
Formed Canopy  
Ready-Bent Landing Gear and Pushrod  
Hardware Pack Includes Nylon Bellcrank, Elevator  
Horn and Hinge Material  
Complete Building and Flying Instructions,  
Illustrated with Isometric Drawings

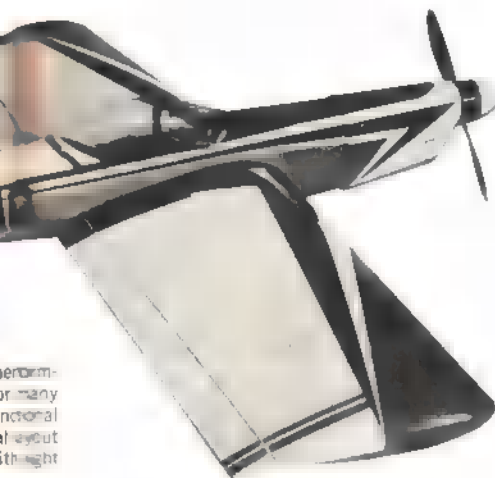
Pat  
con  
ide  
en  
ing  
sta

# LINE FLYING HEADQUARTERS

**Stunter  
BAT**

by Mike Stott

**SIG**  
KIT CL-16  
**\$17.95**



perform-  
or many  
national  
layout  
thright

**Belcrank and Controls**

Belcrank  
Ho  
for, torn  
Pack

Decals for Scale Markings  
Full Size Plans  
Isometric Views and Instructions  
Die-Cut SIG Balsa and Plywood

1/2A PROFILE MODEL

## BEECHCRAFT STAGGERWING

**SIG**  
KIT CL-17  
**\$4.50**



WINGSPAN 18"  
ENGINES: .049

Designed by MIKE STOTT

Mike Stott, World Championship Scale Team flier, has designed the ideal 1/2A Control Line Profile model in this version of that all-time favorite, the Classic Beechcraft Staggerwing. Simple construction and a generous amount of wing area combine to lower the wing loading. This results in out-standing flight performance characteristics. It takes off easily, grooves smoothly around the circle and handles effortlessly. Inverted flight, loops and other aerobatic maneuvers are routine with this zippy beauty of a biplane.

**KIT FEATURES:**  
Shaped Airfoil Wing  
Molded Engine Cowling  
Wheels Included  
Torsion Bar Landing Gear  
Complete Hardware Including Belcrank  
Step-By-Step Plans with Complete Instructions  
Full Decal Sheet of Authentic Decorations  
and Numerals

**TER**

**UNTER ON THE MARKET  
... COMPARE PRICES!**



Designed by MIKE GRETZ

CL Stunt and Sport Model

Patterned after the full-scale aerobatic design, this compact little beauty is rough, tough and sturdy. An ideal trainer for control-line stunt flying, it will do the entire AMA Precision Aerobatic pattern. Fast building in balsa construction provides light wing loading, stable flight and high performance.

**THE ULTIMATE IN CONTROL LINE STUNT**

## SUPER CHIPMUNK

**SIG**  
KIT CL-19  
**\$17.95**



WINGSPAN: 53-1/2"  
ENGINES: .29 to .40

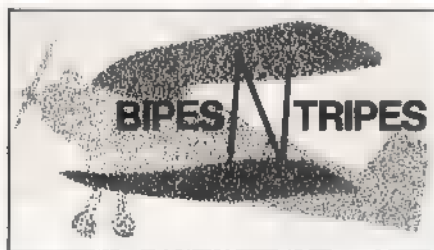
Designed by MIKE STOTT

New Look Molded Plastic Cowling  
Sleek Bubble Canopy With Molded Framing  
Smooth Formed Plastic Wheel Pants  
Handy Printed Sides - Build Directly on the Wood  
Heavy Duty Belcrank  
Colorful Decal Sheet  
Formed Torsion Bar Landing Gear  
Complete Hardware Pack Including Molded Nylon Hinges  
Die-Cut SIG Balsa and Plywood  
Detailed Full-Size Plans

The latest version of the famous aerobatic airplane follows the lines and color scheme of the modified full-size Chipmunk flown by Skip Volk. The unique lines of the cowl and canopy sets the model apart from the average stunter. Designer Mike Stott has incorporated easy construction with strength and durability to produce a high-performance beauty.



# where the action is



## O.L. (OLIE) OLSON ON MULTI-WINGED RC THINGS

Comrades of the Order of Biplane: Before stepping down from my soap box of last month, I want to add my voice to the anguished cries of the multitude. *It is time that scale and sport scale rules be modified to de-emphasize mechanical scale operations!* Multi-engines, retracts, operating flaps, moving hatches, and all the other mechanical gadgetry are nice, and should not be discouraged. But, they shouldn't be a passport to a first place award either.

It's tough enough having to contend with judges who do not (or not) differentiate between the scale-like flying qualities of a Nieuport 17 and a supercharged P-51 Mustang. Current rules are too restrictive and unfair to biplane and other vintage aircraft scale fliers. Nuff said—Arise, again, and remind your District Scale Contest Board member that you're not happy, and that he can be replaced if he doesn't shape up. I intend to send a copy to Claude McCullough, Chairman of the Scale Board. I hear he's working up a new scale biplane for Sig. It should be a beauty! Watch for the Steen Skybolt.

I am now off the soap box and ready to start this month's Bipe column. Except it's not going to be a Bipe column—it's going to be a people column. There is a fellow RCer to whom the bipe lovers of the world owe a great debt. This man was born when the hottest ships in the air were being built by Fokker. He grew up in the biplane era of the '20s and '30s. He experienced the birth and lived the history of our hobby—from the rubber-powered pusher to Baby Cyclone, Bunch, and Brown D powered free flight models, to Jim Walker's revolutionary U-control aircraft, to the hard tube (then gas tube) single-channel radio days. For 16 years he was chief designer for Paul K. Guillow, Inc.

Fortunately, in July of 1964, he decided to become his own boss. AAMCO was born. Next year will mark the 10th anniversary of the introduction to our fraternity of the grand-daddy of RC biplanes. . . . If you haven't guessed who and what we're talking about, it's L. Jay Lou Andrews and his Aeromaster.

Without the 25,000 Aeromasters that he has cranked out during those years (and, believe me, that was not enough) there would be no National Multiwing RC Championships, no bipe contests; in fact, very few bipes. In over 25 years of being involved in this hobby/sport as a participant, a manufacturer, a distributor and a retailer, I've come across, and in contact with, a fair number of model airplane people. Lou Andrews and his Aeromaster represent the frosting on the cake—a generous energetic

This choice VK Nieuport 17 took third at the '73 Multiwing Championships. (photo by Larry Quigley).



man with great integrity and an airplane design and kit of equal performance and value. Thanks, Lou, we're glad you happened along.

Oh! Dad received a note from Dick Graham the other day, with photographs of his new bipe. It's a scale-sport scale model of an EAA ship called the Scamp. Dick has made a little RC biplane history himself with his Liberty Sport now being kitted by Sig. This ship has placed third in the NATS and first more than once at Chicago Scalemaster meets, competing against the best of the Hot and Mechanical WWII stuff. The Scamp has about 100 sq. inches of wing and is powered by a K&B Veco 61. The trike gear, wide wing gap, mono cabane strut and T-tail make it a striking looking ship. Dick reports that it's a lovely and docile thing that lifts off in under 15 feet and is a joy to behold in the air. There are rumors about that you may have the pleasure of seeing this featured in a future issue of AAM. (Affirmative! See Claude McCullough's column for a photo.—php.)

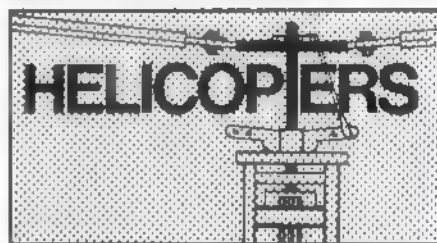
Now, Children, The Lesson of the Month: "When flying a triplane, never, never forget it!" Triplanes will hang in pylon turns and do inside maneuvers like nothing else under the sun. However, the outsides leave a bit to be desired—a big bit. This poor soul (whom I know extremely well) knew all this. He knew that a high center of drag, relative to the thrust line creates big, sloppy, sluggish outside maneuvers. He had been flying the thing a year. Momentarily, just for a split second, he forgot what he was flying, and tucked the plane down for a low and snappy outside loop just to give the boys in the gallery a little thrill. See ya next month, gang. I've got to get down to the shop and start repairing the damage.

Bipes are Beautiful! One look at Mark Frankel's Senior Aerosport tells the whole story. A full article will appear in a forthcoming AAM. (photo by Jim Lipschutz)



Ralph Brown's Sperry Messenger is one of the few casualties of the first Multiwing Championships. . . . He's coming back this year with a new one. (photo by Larry Quigley).

Greater Florida Biplane Championships: The Remote Control Association of Florida, in cooperation with AAM, is hosting a big bipe bash (no, they're not planning to bash a lot of big bipes!) on October 19-20. According to Walt Schoonard, CD, Saturday will be a full NSPA bipe schedule. Only the Sportsman and Advanced Classes will be flown. Sunday morning will be Stand-Off Scale, and it is anticipated that most of the bipe fliers will want to get in some double duty in this event.



## JOHN BURKAM ON HELICOPTERS

Alouette from Switzerland: A fine example of Swiss watchmaker craftsmanship, as seen by Ed Sweeney while visiting the Kavan factory in Germany: two identical Alouette helicopters (HP 61-powered) with approximately five-foot Schlueter-type rotors. The builder (name unknown) flew them very well. The fuselage structure was welded steel tubing. All gearing, except tail rotor gear box, was in one

## aircraft modeler

Presents

### GREATER FLORIDA BIPLANE CHAMPIONSHIPS OCTOBER 19-20

THREE PLAQUES IN ADVANCED CLASS  
THREE PLAQUES IN SPORTSMAN CLASS  
PLAQUE - MOST OUTSTANDING AIRCRAFT  
PLAQUE - HIGHEST SCORING FLIGHT





Maybe the original inspiration for Kavan's Alouette was this HP-61-powered version seen in Germany.

aluminum sand casting just above the clutch and blower housing. Could this have been the inspiration for Kavan's new small Alouette?

Note: The Alouette II and the Lama look very much alike. I asked a Frenchman from Aerospatiale (at the National Forum of the American Helicopter Society) how to tell them apart, and other differences. He said that, in order to obtain a high payload capacity helicopter, they took an Alouette II, lengthened the bare framework tailboom and installed the entire dynamic system (engine, drive system, rotors and upper controls) of the larger Alouette III. Thus, the easiest way to recognize a Lama is by its uncovered tailboom, which sports a three-bladed tail rotor.

Gazelle: Speaking of tail rotors, Dieter Schlueter's beautiful Gazelle is not necessarily out of scale for lack of a "Fenestron," or shrouded tail rotor. The first prototype Gazelle also sported a conventional tail rotor.

More on Rigid Rotors: Two of the worst features of hingeless rotors were not mentioned last month. One is the strong nose up pitching moment of the rotor at forward speed, collective pitch and/or rotor angle of attack increases. The other is gyroscopic coupling between pitch and roll motion.

Most rotors do pitch up in front with increasing forward speed, due to higher air velocity over the advancing blade. However, the hingeless rotor transfers this resulting moment directly into the fuselage, because it has no flap hinges to relieve the bending moments in the blades. Then the fuselage pitches in front, which tilts the swashplate up, which further increases the rotor pitching moment. On an articulated or a teetering rotor, the blades would flap up in front but the fuselage would probably stay horizontal, as would the swashplate, without further increasing the pitching moment.

Then the gyroscopic effect of a rigid rotor messes things up, exerting on the fuselage a moment proportional to pitch or roll velocity, but 90° from the original motion. An all-mechanical gyro stabilizing system is being developed which will be contained within the fuselage, and which will be adaptable to any type rotor.

Test Results on Four-Bladed Rigid: My five-foot diameter rotor with two-inch chord blades weighed 16 oz., and lifted the 6 lb. 10 oz. model at just over 500 rpm.

With a six-foot wide training gear installed and cyclic pitch authority set at  $\pm 8^\circ$  the model behaved as follows:

Incredibly fast! As long as the takeoff was correctly trimmed and the model was level, it stayed that way. But let the least disturbance occur, and the correcting control was too much, causing the model to bury its nose or tail in the driveway. A scant five seconds was my longest flight in that configuration.

Cutting down the cyclic authority to  $\pm 4^\circ$  calmed things down a bit, but extreme concentration was required. The model didn't seem to care which way was up. A noticeable improvement resulted from sweeping the blades back about 2°. Now the model seemed to correct some of its own deviations without my having to move the stick much. Thirty seconds was the maximum hovering time, with luck. No forward flight was attempted. If one really wanted to learn to fly that rotor, I suppose it could be done, but it's like walking a tight rope.

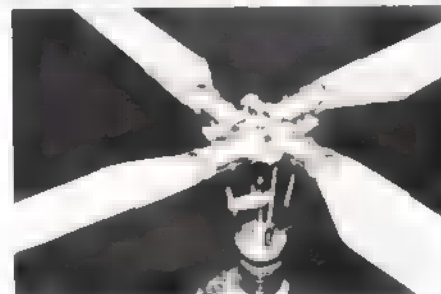
It did seem to behave better in very slow forward flight, about walking speed. But gusts hitting it caused severe pitching up motion, and gyroscopic coupling made correction difficult.

Control phasing of about 75° seemed about right. That is, for forward tilt of the

rotor, maximum negative cyclic was put into the blade 75° before the blade pointing straight ahead. A quick forward blip of the stick made the nose go down, etc.

A bad feature of connecting blade pitch arms to the servos via the swashplate is that it puts extremely high loads into the servos in a crash. Even with a 10:1 ratio between blade pitch and servo rotation, some of the gear teeth in one of my servos got stripped once.

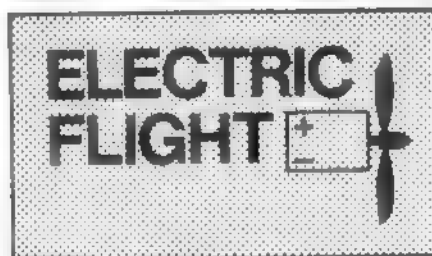
Two of the good features of rigid rotors are: it was the smoothest rotor I had ever flown. Even when the blades were slightly out of track pattern, vibration of skids or tailboom occurred while it was flying. Also, with all the bad landings and sudden maneuvers, no blade ever hit the tailboom. This



The rigid rotor system which this columnist has been exploring for the last few installments.

means that almost any maneuver will be possible with rigid rotors; e.g., back flip, forward somersault, standing snap rolls... you name it.

Loops: They aren't that difficult. I have done four (one was unintentional). All it takes is a somewhat streamlined helicopter, and guts. Fly at maximum speed in level flight and smoothly pull the stick all the way back and wait. Oh yes, better have a clunk in your tank or the engine will cut. Pull the stick back too fast and all the kinetic energy will be dissipated in stalled blades. Pull back too slow and the model will stop moving before it gets on its back. A horizontal stabilizer (about 1% of main rotor area) will insure that the nose will drop, once the model gets its back. Keep rotor rpm up so that the blades will be less likely to hit the tailboom during the pull-out.



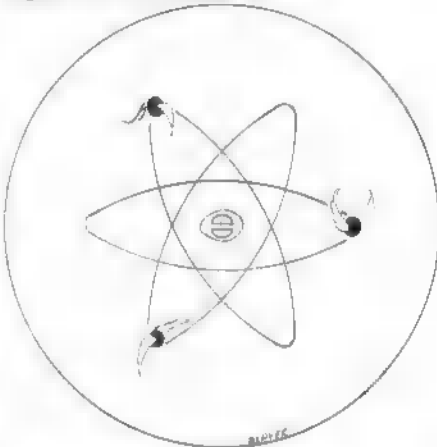
## MITCH POLING ON ELECTRIC FLIGHT

Vacation Time is Here! The next month's column will be handled by Henry Pasquet, as I will be on vacation. Henry is well qualified for the job, as shown by the photo of his fleet of electric planes. Henry ran the test program on the Astro Pup, which included the four-channel Jr. Skylark shown here. So, until November, good flying!

Nicky Nicad, Novice Pilot: George Beaver sent this amusing cartoon of Nicky learning to fly. Henry Pasquet's air fleet includes an Astro Pup-powered Jr. Skylark, Jr. Falcon, Ranger 42, and an Astro 25-powered Skylark 56. (Photo by Henry Pasquet)



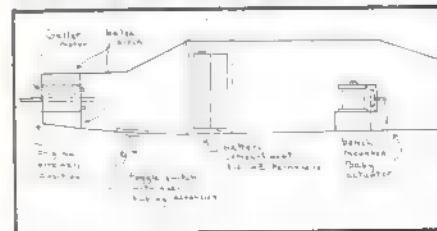
fly. Nicky looks like he's not sure who's supposed to be the pilot! The little airplane is the electric Dick's Dream, the second part of which is appearing as a separate article in this issue. George is co-author, incidentally. The decal design by George is the atomic symbol, modified to show electrons with wings, in orbit around an ecology symbol. This would make a good design for a club, or, perhaps, a league of silent powered flight.



Direct Drive Alpha II: The Alpha II unit was recently featured in an article by Ken Willard, who designed the Alpha Roamer for it. I have flown several of Ken Willard's designs, and they have all been outstanding. However, the Alpha Roamer was too big for me, so I ordered an Alpha II motor (available as a separate item, \$14.95 plus \$1.75 shipping, from Galler Electronics Industries, P.O. Box 87, S. Walpole, Mass. 02071).

This was installed in one of my favorite Willard planes, the Schoolboy (Top Flite Models), shown in the sketch. The all-up flying weight was 12.5 oz. with the Ace Baby pulse RC radio. Initial rpm was 15,000 with a 4 1/2" Cox gray prop, using six GE Permaseal pencils at six to seven amperes drain. The Schoolboy was built stock, with no firewall (a balsa block was used), with Solarfilm covering. A trip switch was used in the electric Dick's Dream, and a bench mount was used for the actuator in the RC SuperStar.

The plane climbs out rapidly, and has quite a lot of power. The plane is still in the trimming stage—so far the flights have been in the three to four minute range, with altitudes up to 200 feet high. This will improve with better trimming of the plane. An added bonus is that the motor has broken in, and now produces 17,000 rpm on the 4 1/2" x 2 prop, or about the power of the Tee Dee 020. The Galler motor would certainly power the 020 Old Timers on direct drive, and may also be suitable for the Dick's Dream.





Electric YAK 12: Ed Toner files a free flight 48" span YAK 12, originally a rubber-powered plane, with the Alpha II; and scaled down 32" YAK 12 with the older Mattel SuperStar unit. Ed recommends beefing up the landing gear for these; the 48" YAK flies well with the Galler unit. Plans are available for \$3.75 from Buzzer Model Airplane Company, 52 Newbury Rd., Lakewood, N.J. 08701. I have a set of these plans—they are quite thorough.

The washer motor or the Galler on direct drive should also fly this well—it looks like a good subject for free flight scale. Ed also mentioned that the motor units for the Mattel Sizzler cars might fly Peanut scale planes. If anyone has tried this, I would be interested in hearing about it. The motor plus battery weigh .5 oz., so it looks like it could be done.

Mabuchi Motors: I receive questions now and then about different types of Mabuchi motors, since they are readily obtainable and inexpensive. There are several series of Mabuchi motors. I recommend those with the RS prefix. This is the heavy-duty series, with cantilevered carbon brushes which are capable of handling high current loads (in the five to ten ampere range). The RS 260 is used in the SuperStar, and produces about 0.10 power. The RS 34 weighs two oz., and produces 15,000 rpm at ten amperes on a 4 1/2 x 2 prop with four Permacell pencils—about the power of a Pee Wee 020.

The RS 360 is about three oz., and was used in the Mattel Signal Command. I estimate its power is in the 0.35 range. The RS 85 weighs eight ounces, and was used in sit-on kiddle cars on six volts—estimated power in the .09 range.

The other commonly encountered prefixes are FM and RE. The RE series are lighter duty motors with copper wire brushes, and are suitable for free flight, but do not last as long as the RS motors. The wire brushes may also cause enough radio noise to cause problems in RC planes. The FM series are earlier motors, similar to the RE motors. The same comments apply. The FM 25 was used to power the Electra Fly, a 3.5 oz., 19" span foam plane sold (circa 1967) by AristoCraft. It used two sodium chloride cells, and flew well. Two Mattel 100 ma cells from the SuperStar or the Sizzler cars would probably do well.

Polks Hobby Shop, 314 Fifth Ave., New York, N.Y. 10016, is the exclusive importer of Mabuchi Motors.

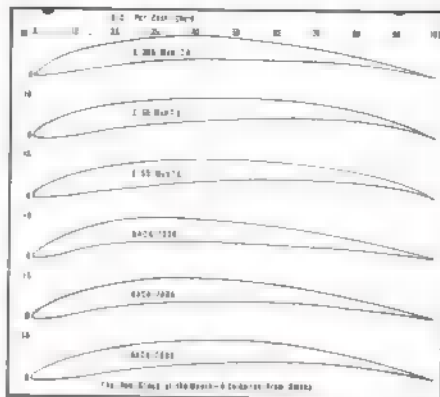
# L/D=

## THE OMAHA CHIQUITAS TAKE ON THE GRAND FUNK ERIC LISTER

That's a pretty funny title for this month's column, but it's well chosen. The purpose of this month's effort is to give you six new, slim, highly curved airfoils (The Omaha Chiquitas) and a new design 1/2A FF ship with a funny-looking but aerodynamically clean fuselage (The Grand Funk-320) that was used as a flying test bed. Since the combination worked out to my satisfaction, it's worth talking about, so let's get to it.

The six new airfoils shown are intended for light wing loadings and slow-flying, thermal-seeking ships—like Nordics, RC thermal soars and powered endurance models (Coupes, Wakefields, Unlimited Rubber, and 1/2A Free Flight). All 6 have 7% max camber (which is pretty high) and 6% max thickness (which is pretty thin). Three of them are brand new derivatives from the Eppler series.

The remaining three are extensions of the NACA 4-digit series of airfoils. Each and every one is intended for use where somebody wants to try something in the way of a new airfoil that has a good chance of succeeding in competition. To increase the odds on this being the case, the one airfoil that seemed to be



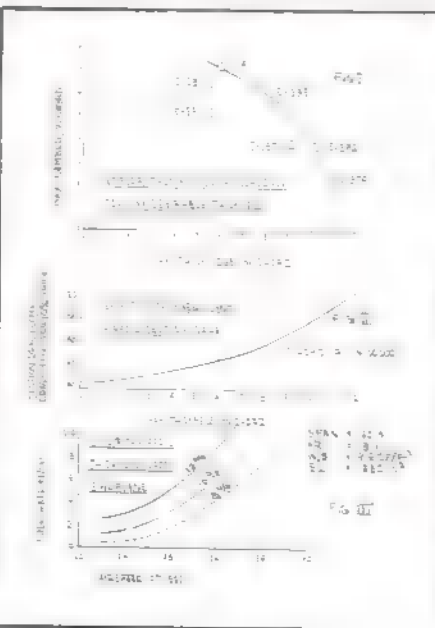
the biggest departure from conventional design was built into a new design 1/2A FF ship (the Grand Funk-320) and it worked out great. While this doesn't prove that the remaining five will be the greatest thing since fried rice, it doesn't say that they'll be poor designs either.

The new airfoils were built up by the same methods of the last few L/D columns. This means that the Eppler derivatives were made by proportioning the parent Eppler sections to have a 7% max camber and a 6% thickness. The NACA sections were built up similarly by taking the standard 63, 64 and 65 meanlines, raising them from 6% to 7%, and then wrapping the symmetrical NACA 0006 airfoil around the meanline. The six new sections (the Omaha Chiquitas) and their coordinates are given in the table below.

| Section       | LE Radius<br>% Chord | Location of<br>Max Camber<br>% Chord | Thick<br>% Chord |
|---------------|----------------------|--------------------------------------|------------------|
| E-385/Mod 7,6 | .4                   | 30                                   | 30               |
| E-58/Mod 7,6  | .4                   | 25-30                                | 30               |
| E-59/Mod 7,6  | .4                   | 25-30                                | 30               |
| NACA 7306     | .4                   | 30                                   | 30               |
| NACA 7406     | .4                   | 30                                   | 30               |
| NACA 7506     | .4                   | 30                                   | 30               |

In past articles I've tried to make at least a wild guess as to which sections should be better than others. But with these 7% cambers, that's really squeezing the technology, no preconceived notions regarding "goodness" or "badness" will be offered.

The table below, however, lists some of the properties of these airfoils, which might well describe the big factors that will decide how well these new sections are going to perform. Whether they turn out to be really good sections or just so-so for competition will most likely depend on how important the factors below are.



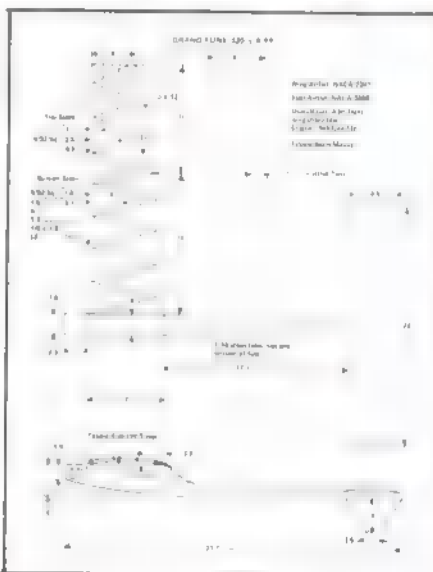
### General Airfoil Characteristics

| Section       | LE Radius<br>% Chord | Location of<br>Max Camber<br>% Chord | Thick<br>% Chord |
|---------------|----------------------|--------------------------------------|------------------|
| E-385/Mod 7,6 | .4                   | 30                                   | 30               |
| E-58/Mod 7,6  | .4                   | 25-30                                | 30               |
| E-59/Mod 7,6  | .4                   | 25-30                                | 30               |
| NACA 7306     | .4                   | 30                                   | 30               |
| NACA 7406     | .4                   | 30                                   | 30               |
| NACA 7506     | .4                   | 30                                   | 30               |

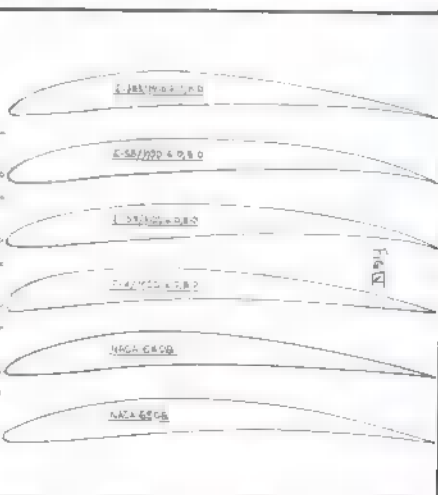
Just from the information presented, the big difference among the six is in the chord location, where the max camber is located. This ranges from 30% up to about 60%. At this 30% extreme, we have the NACA 7306, and at the other extreme of 60% we have the E-59 Mod 7,6. For what it's worth, there are several high-performance, contest-winning Nordics and Wakefields that use thin, highly cambered airfoils where the max camber point is over the 30% chord location. There are also some where the max camber point is at 50-60% chord location. The most common choice seems to be around the 50% location. This doesn't make the 50% location the best, just the most common. The best location could be something different than an aft location.

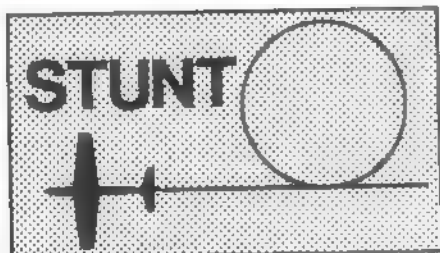
The only other big difference among the six can be seen by looking at the airfoil drawings. If you look at the sketch, you'll see that the Eppler-derived sections have a meanline that stays up high in its aft portion, and does not fall back to the trailing edge as

(Continued on page 105)



Because of severe space limitations, the airfoil plots and graphs from last month's L/D= were omitted. Here they are, just to keep the record straight.





## DON LOWE ON RC

**Pattern Trends:** If you have looked at the AMA and FAI RC aerobatic judge's guides lately, you will note some requirements relative to maneuver size and positioning. Both guides are very similar in regard to statements concerning maneuver size. Therefore we will concentrate on the FAI guide.

Basically, it states that maneuvers are to be placed not more than 100 meters out, and shall not exceed 100 meters in vertical size. Adding to that the 45° angle requirement (maximum elevation), one gets an idea of a fairly well prescribed box that the rules encourage. Statements also encourage closer and smaller maneuvers than these maximum dimensions. When you add to this prescription the definition of some of the FAI maneuvers—the Top Hat, for example—things start to get tough for the present aircraft and flying techniques.

For years now, we have been moving toward faster aircraft, more powerful engines and naturally bigger maneuvers. This trend is natural, since it is simply easier to fly precision maneuvers (especially in the presence of wind) with a fast, sleek airplane. Maneuvers have been getting so large that it is difficult to judge the track of three loops, for example, and rolls start in the distance and end in the next county.



What is it? All of you who guess a model airplane can go back to sleep. See Lew McFarland's CL column for the surprising answer, (pg. 64).

Now, don't get me wrong—I'm not knocking big maneuvers because, to me, they are pretty and impressive, and I like doing them as well as the next guy. However, with the new rules staring me in the face, I (and a lot of others) am reconsidering my approach to pattern flying. There is no question that the large maneuvers will continue to be accepted and graded accordingly at local contests. However, if the rules stick, a trend will persist (and must) in the direction of the FAI... particularly for those who aspire to advancing in pattern flying and shooting for the FAI Team goal.

Unfortunately, the FAI guide sticks us with size requirements and, at the same time, adds some maneuvers that almost prohibit compliance. For example, the FAI Top Hat now requires a full vertical roll prior to push over. It is almost impossible to meet the size criteria with present aircraft without an extremely fast roll rate. This maneuver also requires a healthier engine to get cleanly through the maneuvers, and a lot of speed helps.

The maneuver is actually easier to accomplish than previously, and to me that's not good. I would classify this maneuver as "poor" and recommend that we return to the old form, using a half roll in the vertical and pullout to inverted position on top. This form is easily more confusing to the pilot in terms

of control direction for flight path corrections and is therefore more difficult.

The new Figure M, with its four half rolls in the vertical legs, creates a very difficult maneuver and is, therefore, the correct trend. Unfortunately, it also requires more vertical height, and tends to violate the apparent move toward smaller and slower maneuvers.

The Rolling Eight is another poor maneuver, in my estimation, since you must start the maneuver low in order to meet the altitude limit... that means facing the very real danger of ground clearance during the second loop—a lot of guys are going to run into the ground on this one! It also requires an extremely fast roll rate for the two half rolls in the middle in order to assure maneuver symmetry.

What can be done about all this? Well, in order to compete, for now, we must adjust our aircraft setup and flying style. At the same time, it would seem prudent to prevail on the FAI to bring things more in balance, i.e., change the criteria. Basically what we now need is a lower wing loading, faster roll and pitch rates, and engines that really are throttle responsive and torque well when loaded. At the same time, we need aircraft and engines that will really go, in order to clean up those rolling maneuvers, and there is a lot of them!

I have been experimenting with several of the new engines, and they all fit the bill. Engines such as the new Webra Speed 60, the Supertigre 60 ABC and Lou Ross' Schnuerle 60 all meet the need. The ST 60 Bluehead, also, continues to do a good job, but is slightly shaded by the Tigre ABC.

Flying technique requires a lot more use of throttle in order to create smaller and closer maneuvers. We also have to exercise more in vertical size in order not to exceed the vertical 45° requirement. We recently did some checking on maneuver placement while watching buddies perform the pattern. Believe me, the old technique places maneuvers a lot further out than we imagine. Several also found it difficult and a bit unnatural to move things in.

At Fort Huachuca, New Mexico, this Praelle II is Philco-Ford's latest experimental mini RPV. Powered by a 5-hp twin, it is flown with both standard RC equipment, as well as via the TV monitor behind the model.



**Additional Trends:** Now that I have my neck way out, let's look at a couple of other pattern trends or norms. Ships have gotten faster due to sleek design, retracts and much more powerful engines. They, the average, are prettier—with beautiful paint jobs because of the builder's pride and the desire to impress the judges. They are heavier due to the addition of gadgets such as retracts, larger fuel supply (12-16 oz.), fiberglass/foam construction and automotive type finishes. The extra weight is a bonus in windy conditions.

Wing area and size shrank for a while, but they are on the increase again due to the need for reasonable wing loadings with the additional weight. Some have tried valiantly to push a smaller airplane, such as a 40 size, but this has been generally unsuccessful. This is true simply because the larger aircraft flies better and realistically, especially in windy weather. I would expect that a pattern ship twice the size of present designs would fly better, but this would be rather unreasonable.

In our own Teleplane project at Wright Patterson AFB, the larger craft always flies better and can accept higher wing loadings without complaint (did you ever hear of Reynolds' Numbers?). Some are experimenting with flaps, in order to slow down the sleek fast beast for landing. Others are fighting torque with ducted fan engine designs. How about contrarotating props or twins?

Where the Action Is columns are what you readers are doing, making, or flying. Support your columnist with articles, photos, and ideas. Sketch your neat gadget. We'll draft it for presentation. Each item earns you a \$5 bill. Submit to the writer, c/o AAM.

## LEW MCFARLAND ON CL

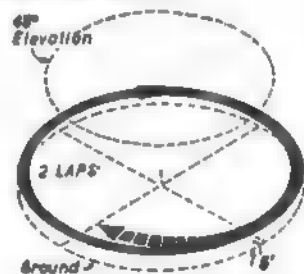
**Book On Stunt:** Because of my position as a Contributing Editor and the resulting inquiries and correspondence, I have concluded that there is a need for a book or booklet on the fundamentals of Stunt Flying and Construction. Many fine articles treating all of the ramifications of our sport have been published. However, these have been published over a considerable period of time in several different magazines. The only compiled listing I have seen appeared in PAMPA "Stunt News," November 1973, thanks to Wynn Paul, Editor. I suggest Bob Gieseke retire and start on this project "immediately."

Seriously, in my position, you begin to be redundant and repetitious, and yet space is lacking to thoroughly cover subjects such as: finishing, foam wings, control systems, fuel systems, fuel mixtures, variation in designs, etc. IS THERE A NEED? Our hobby constantly has new faces, those who have not eagerly read each stunt article and picked it apart for the past twenty years. These "new faces" seek information.

**Maneuver of the Month (From the AMA Rule Book):**

**13.5 INVERTED FLIGHT (Two Laps).** Correct inverted flight is judged when the plane makes two smooth, stable laps at normal level flight altitude.

Maximum 40 points. Minimum 10 points. Errors: Altitude is not 4-6 feet. Altitude varies more than two feet.



This is certainly a maneuver which needs little explanation but, without doubt, a great hurdle to perfect for the aspirant stunt flier. The learning of Inverted Flight can be approached in a semi-scientific manner, or just flip it over on its back and "try" to remember that the controls are reversed. The number of planes demolished will vary depending on the individual; there are those "natural" people who can do this. However, most should first become very proficient with (1) level flight (2) climb (3) dive (4) inside loop (5) outside loop and (6) "lazy" (elongated) horizontal eight.

The "lazy" horizontal eight gives experience in both entry and exit, and need only be elongated proficiency improves. When you do an eight which takes a full lap, you may have just mastered inverted flight. Dick Mathis' *How to Fly U-Control* makes a good point that can be applied to other maneuvers: "Make a dry run practicing walking backward in a circle the other way, since it is going to feel really strange to you at first with the airplane out there also. Play like you are giving reverse controls at home just to get used to the idea."

After a lot of inverted flying, you will get to be automatic in a control response. You may ease the situation somewhat with the hand (and handle) turned more parallel to the ground. A well designed and balanced plane will groove just as well inverted as in the upright position, but you must anticipate a tendency to climb as the plane comes into the wind and to dive on the down wind...





The other half of the riddle (see page 63), Lew McFarland with his CL/RC Akromaster. Lew suggested, since the model flies both ways, that half of it belonged in Don Lowe's column, and that's just what we did. Lew's model will appear in the October issue of AAM.



## BOB STOCKWELL ON RC

Formula 1 at Sepulveda Basin: It has become customary for the modeling publications to associate themselves with major contests around the country. In Formula 1 Pylon Racing, the Winter Nationals at Tucson were co-sponsored by RCM Magazine. MAN has co-sponsored the Bakersfield Race the last two years. And now AAM has associated itself with perhaps the most active pylon group in the United States, the Valley Flyers of the San Fernando Valley in Los Angeles, in sponsoring their annual Formula 1 Race at Sepulveda Basin.

On the first occasion of this happy union there were 83 entries—51 in Standard Class and 32 Experts. That's not as big as Bakersfield with 104, but it's bigger than several NATS have been, and it demonstrates at the very least that Formula 1, in spite of the speeds, is anything but a dying event in Southern California. So much so, indeed, that there is now talk of holding separate contests for the Standard and Expert Classes to provide more heats for each class.

This was truly an exciting race. After seven complete rounds, there still had to be several fly-offs for final standings. The contest took place in magnificent weather (for a change) over the June 7-8 weekend. Most of the entries were local, but three came from Mexico, several from Northern California (where Formula 1 racing has been withering for several years—a real pity since three or four of the best in the country live up there, including Joe and Ed Foster, Ron Sheldon, and Paul Benezra), and one from Phoenix.

Given the weather, many of us thought that the blistering speeds turned in during the chilly Bakersfield would be bettered, but only the winner, Terry Prather, managed to get under 1:20. Terry turned in a 1:17.3 and a 1:17.6—and never in the entire contest went slower, according to my records, than 1:23.

Terry has finally got his Supertigre X-40 running with perfect consistency: Early in the season (even as early as the Tangerine New Year's) it was perfectly clear that, if he could add consistency to his otherwise brilliant performance, he was going to be unbeatable this year. He deserves an enormous amount of credit for his hard work, obstinate persistence, and endless experimentation with his engine, fuel, props, and airplane to put together a flawless winning combination.

He is flying the airplane that he designed (and is now producing for the rest of us, the Prather Products Li'l Toni), an engine that he

customized himself, burning his own mix of fuel, with props that he slaves over by the hour. Let's face it: That kind of initiative and excellence deserves to win. It seems to me that Formula 1 breeds a very special kind of excellence: Bob Smith, Kent Nagy, Larry Leonard, Cliff Weirick, Violet, and Joe Foster have it, Terry Prather has it to a surpassing degree.

In general, there are two aspects of this that deserve special comment, besides the specific accomplishments of the winner. First is that the Supertigre X-40 has clearly arrived. Wes Morris' X-40 which was customized by George Aldrich looked to be every bit as fast as Prather's. Wes, who is a Frontier Airlines pilot, flies the big ones several cuts better than he does the toys, which is a good thing for his passengers, since he crashed his Miss DARA in a fantastically close and exciting fly-off with Dan McCan. Joe Vartanian flew a Tigre customized by himself and Jim Jensen. He was obviously fast enough to beat even Bob Smith in their heat, though he won it with his flawless course when Joe flinched coming down the back straight and overcorrected to get outside the pylon, losing half a lap before he got the course still. Joe ended up in fourth place, his finish ever in a major contest. Other hot STs were those of Tom Tusing, of young Mike Atzei in Standard Class (a very impressive early teenager who will be one of the big names in this game within a year or two), of Roger Owens

(extremely fast, though he's had rotten luck hanging onto airplanes, losing one in each of the first three contests this year), of George Flynn (who was in that fly-off for eighth place with Wes Morris, Dan McCan, and Don Powell, and who also crashed around the No. 3 pylon in the heat and excitement of the race).

At the moment of this writing, it is apparent to me that a well-customized Tigre has a slight edge over an equally well-customized K&B, though not much as the G-40 had over the earlier K&B's, and certainly nothing like as much of an edge as the infamous K&B 100 had over everything else in 1972. I honestly don't expect that K&B will stand still for this edge. If anyone knows how to rise to a competitive challenge, it is the Brodbeck and their advisers, like Clarence Lee.

The other general aspect of this race which I have to point out reluctantly, but nevertheless accurately, is that crashes due to pilot error among the experts were at an all-time high. Most of these crashes were pulling around the No. 3 pylon in tight races—and just listen to this list! Wes Morris, George Flynn, Chuck Smith, Mike Atzei, Roger Owens, Ed Allen and Jack Lee all crashed this way.



(1) Prather was the only flier to break 1:20, with his Li'l Toni, a Prather Products kit. (2) The "Prather Pipe or Exhaust Extension." Efforts to prove that it boosts power showed that it either lost rpm or held steady on the ground. Some very red faces. (3) Dick Sonhelm needs new vocal cords to replace the ones he coughs out. Announcing greatly enhanced the spectator appeal. Bleachers provided seating for 1000. (4) Bob Bleaden's Miss DARA with the hound dog, who's expression foreshadows the events shown in photo 5. (5) Out of retirement, but just barely, is Whit Stockwell, son of AAM's intrepid race reporter. With lots of luck, and no speed, he placed seventh. (6) The most beautiful paint job on a racer is Dan McCan's Super DARA. Two shades of green and white—the colors are the Hoover's Aero-Commander, of which Dan has built a beautiful model.

# AMERICAN aircraft modeler

PRESENTS

WESTERN STATES PYLON CHAMPIONSHIPS

OCTOBER 12 & 13 1974

WE CONTRIBUTE BECAUSE WE CARE

CONTACT: Nate Rambo  
1158 Baywood Avenue  
Camarillo, California 98010

CO-SPONSORED BY:  
The Flying Circus Club of Camarillo  
NMPRA SANCTIONED



## 200 ■■■ BARRIER SHATTERED

On 15 June, Jan Marsh, Mike Langlois and Charles Schubert flew their C Speed ship to a new U.S. record. Flying in a contest in Winston Salem, N.C., the team set a new mark of 200.37 mph, this being the first time that a speed model broke the magic 200 mph mark. This modified OPS 64 held up for a back-up flight of 196.64 mph.

On the same day, Mike Langlois set a Sr. Jet record of 199.04. Johnnie Smith will have further details in a future AAM.



In the true spirit of racing, Jeff Bertken (alias The Sound and the Fury) shows his true feelings about the mid-air which demolished his Super DARA. The servos are still in that fuselage!

In addition, both Larry Leonard and Kent Nogy came within six inches of crashing in the same way. Jeff Bertken, in the top of the standings with Nogy up until this race, chewed ■ Jim Witt's tail in a spectacular mid-air in the seventh round. Charlie Shaw and Kent Nogy mid-aired on ■ simultaneous takeoff, or Nogy would certainly have had a chance ■ fly-off with Prather for first (it happened that ■ was not matched against Prather in the regular heats, by luck of the draw).

Bob Bleason busted up his Miss DARA ■ landing, and Tony Brown managed the same trick ■ takeoff. In fact, "DARA row" looked more like "skid row" by the end of ■ contest. There were enough mangled DARA's around to open a junk shop.

Other losses included a radio failure for Ron Sheldon, who also knows how to make a Tigre purr, one for Tad Sato, a folded wing for Manuel Sierra, and a crash induced by either a mechanical or electronics failure in Johnny Brodbeck's Minnow. Indeed, the

(Continued on page 106)

## JOHN SMITH ON CL

Fuel fixins' are getting scarce: A call the other day from ■ major fuel manufacturer confirmed rumors that alcohol is ■ the hard-to-find list. He says ■ may have to curtail production until a large amount is found. (Like half a million gallons!) So don't ■ fuelish, ■ the ads say. ■ it last as long as you can.

Formula V: A note from Bob Sargent (Cleveland, Ohio) tells ■ that Formula V Racing is still growing by large leaps. Even though the CLCB put ■ 1" scale size in the rules ('74-'75), ■ requests for plans and rules are very high for the 3/4" scale. Formula V planes. Plans have gone out to every state in the union, including Hawaii, and ■ some to South America. The Cleveland Aeromodel Society will again hold the "V" races at the NATS this year as an unofficial event. Last year, the winners drove from Washington, D.C., just to compete in Formula V. Most guys are running Cox Black Widows in them.

Racing is Fun: Putting fun back in racing seems to be the "in" thing these days. Of all the many newsletters I receive from all over the country, most are stressing low-cost, easy-to-fly (and regulate) speed and racing events. Everything from Slow Rat, Slow Proto, (would you believe 120 mph with a



■ Storie launches after ■ phenomenal eight-second pit stop. Kerry Turner assists.

40-powered 300 sq. inch profile proto?), 1/2A Mouse racing and Formula V. The main factors are speed on a limited budget and fun for every one.

After all, isn't speed (mph) relative? Beating a guy by a second or two at 120 mph must be ■ much fun, and as much satisfaction, as it is at 180 mph. I'm not advocating that everything must ■ slowed down, but where ■ a beginning speed filer get his start? Not with ■ 175 mph B job, that's for sure.

The events being run by all these clubs are filling ■ great hole in our competition ranks that has been empty for all so many years. If clubs in your area run such an event, try it out. It just might be fun.

Consider Speed: While looking over the contest calendar in Competition Newsletter, edited by Carl Wheely, I can't help but wonder why there are so few Speed and Racing Events scheduled by the clubs. It seems that there ■ certain ■ where speed really grows, and these same places have, over the years, always been hotbeds of racing activity. The L.A. area, some of the southern states, as well as North Carolina, Texas, Alabama, Ohio and New York have, over the years, furnished almost all of the speed competition for the entire U.S. More CDs ought to look in on us. We don't eat much, all we need ■ a few timers, a good pylon, a nice flat place to fly from and, in return, we'll give you crowd interest, along with a large entry of happy filers.

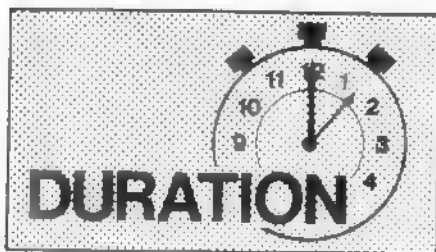
Newsletter Editors Attention!: Of all the newsletters I receive each month, it is surprising how many of you don't have a return address on your masthead. Although I don't have the time to write to each of you every month, I do read all of your papers and digest every word. Some of you really call your shots regarding product reporting, some serious, some very funny. Some of the club names I don't really understand—for example, the Cholla Choppers. What is a cholla, and why is it chopped?

The Crash Crew News is self-explanatory. They fly lots of combat. The Southern California Control Line Association News always reads like a comic book. From a writer with the name of Charlie, The Tuna, what else could one expect. I know you're out there Charlie. Put ■ back on your mailing list. I'm still looking for club patches. If you have an extra, send it to me and I'll wear it with pride. Thanks again to all of you.

Cox Pipe: In a recent issue of AAM, Cox Mfg. had ■ ad regarding ■ "pipe" for the T.D.s that would give an increase in power. A call to Cox tells me that it indeed does increase power but, since it is a muffler type unit, the pipe only raises the power back to the unmuffled engine level. This is still better than any other muffler design for the smaller engines.

Look Us Up: Glenn Lee and I will be covering the Speed, Rat Race, Team Race, Goodyear, and other related unofficial events at Lake Charles, so if you have anything of interest we may have missed, let us know. I would especially like to hear your feelings on rules changes, shortcomings of our present rules, ideas that will help our sport grow—anything that will perpetuate speed flying and racing. Look us up, we'll both be good listeners.





## CARL MARONEY ON RC

What is LSF? You're in good company if you're curious about the LSF. Many are these days. The LSF is attracting the attention and interest of RC sailplane enthusiasts throughout the world. The League of Silent Flight is an association of and for the individual sportsman. It is not a club... it is a program... and participation neither conflicts with, nor requires club membership. However, many clubs find that group participation in the LSF can excite new interest and bring new growth.

Membership can only be earned. Membership cannot be bought; there are no membership dues or fees. To become a member, RC sportsman must fulfill the requirements of Level 1 of the LSF Soaring Accomplishments Program: a five-minute thermal flight; a 15-minute slope flight (or a second five-minute thermal flight); and five spot landings within three meters (9.84 feet) of a target point.

| LEVEL | Requirements          | Intermediate             | Advanced         |
|-------|-----------------------|--------------------------|------------------|
| 1     | 5 min thermal flight  | 15 min slope flight      | 5 spot landings  |
| 2     | 10 min thermal flight | 30 min slope flight      | 10 spot landings |
| 3     | 15 min thermal flight | 45 min slope flight      | 15 spot landings |
| 4     | 20 min thermal flight | 1 hr slope flight        | 20 spot landings |
| 5     | 25 min thermal flight | 1 hr 15 min slope flight | 25 spot landings |
| 6     | 30 min thermal flight | 1 hr 30 min slope flight | 30 spot landings |
| 7     | 35 min thermal flight | 1 hr 45 min slope flight | 35 spot landings |
| 8     | 40 min thermal flight | 2 hr slope flight        | 40 spot landings |
| 9     | 45 min thermal flight | 2 hr 15 min slope flight | 45 spot landings |
| 10    | 50 min thermal flight | 2 hr 30 min slope flight | 50 spot landings |

Advanced levels in the program progressively more challenging. Level V, for example, requires a two-hour thermal flight, an eight-hour slope flight, a 10 km (6.21 miles) goal and return flight, as well as considerable success in soaring competition. Members—sportsmen who have achieved Level 1 or higher—are privileged to display the distinctive LSF insignia. The LSF emblem on a jacket or sailplane is a symbol of proven performance. It is displayed with pride, and is recognized anywhere in the world. The LSF is a personal challenge, and serious sportsmen are invited to associate with the League. The first step? Declare your intent. Use the coupon reprinted here.

**Slope Opera:** (by Cos Pels, AAM's Midwest Correspondent): For years, we soaring enthusiasts in Chicago and surrounding environs had been envious (to some degree) of slope soaring sites enjoyed by Californians.

After exhaustive exploration encompassing a radius of 125 miles, we of SOAR have discovered a site that has lain dormant almost at our doorstep... Lake Michigan. Although

there are no bluffs in the immediate Chicago area, the little town of Cudahy, located just south of Milwaukee, offers the slope buff sheer rises up to 150 feet the lake front. When easterly winds of 10 mph prevail, slope soaring becomes a reality.

An expedition was formed to try this fabulous sport. That day turned out to be one of the best encountered yet and proved to be immediate success. Those of us who were there were instantly hooked.

By 10:00 am, the residents of Cudahy became alarmed when reports were made of aircraft seen plunging into the lake. There have been times since, when the local gendarmerie converged upon the lake shore to check out these rumors, only to find a bunch of nuts from Chicago with their airplanes.

Now, the kind of slope soaring such as that found on the bluffs of Cudahy, or the cliffs and ridges of California's coast, can rarely be equaled in extended length. This wide expanse can accommodate any number of flyers simultaneously, whereas the inland variety of hills and bluffs has a limited breadth a resultant area of limited true slope lift.

Usually, the inland slope sites pilots will climb the slope lift to maximum altitude and then strike outward in search of thermals. In this way, more gliders be airborne as the space in the lift area becomes available to them.

As often as we have flown the Cudahy bluffs when conditions were ideal, we have never ceased to be impressed. I would stake my questionable reputation on the fact that a well designed beast of six to feet in span, with acrobatics in mind, could perform many stunts which, till now, remain in the province of powered ships.

It was once stated that flying a good slope site is like flying in a giant boomer which just won't quit... that even your lemon can be respectable there. To such a statement I will indeed subscribe!

However, to those of you who have never been exposed to slope soaring and have regaled thus far with tales of the trills and excitement which awaits you, I feel I would

(Continued on page 110)

## BOB MEUSER ON FF SPORT

**Catapult Capers:** During our severe Northern California winters, when the mercury has been known to drop as low as a bitter 40°, the more "serious" forms of Free Flight give way to the kookier events, among which is Catapult Glider. At the More-Or-Less Annual Catapult Conclave and Sandwich Social of the Oakland Cloud Dusters, there usually appear about equal numbers of well-worn has-beens (gliders, that is) and shiny-new hopefuls. Most of the gliders conform to the standard format: a beefed up, sometimes overgrown, hand-launch glider.

But, occasionally, there appears something a bit far out. This year it was Dave Parson's model, which had a closer kinship to FAI Power technology than to the lowly hand-launch glider. Dave's model was a big devil, sporting a built-up wing, a Tatone timer-operated auto-stab—the mechanism is identical to that used by Dave on his

FAI-Power models—and a gross weight of half a pound. When launched, the model would follow its nose along a straight line until its momentum waned, then the trailing edge of the stab would pop up about 1/16", putting the model into a floating responsive glide pattern.

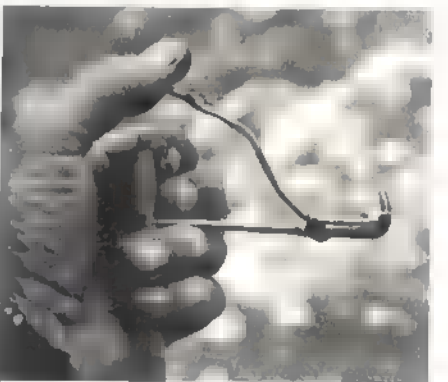
But for a bad recovery on his last flight, when the timing was off, Dave might have won. He had to settle for second place to John James, who put his rather small conventional model up to extreme altitude with great consistency. In the Juniors department, 13-year-old David Bowser, who has only been flying a few months, showed some of the old-timers the fine art of trimming one of the cantankerous beasts, and came out top man (or rather, boy).



Dave Parsons gives David Bowser an assist with the launch of his catapult glider. On the following flight, the rope slipped. Dave was last seen flying low over Sacramento. Mather Field reported an UFO sighting at about the same time.

The catapult consists of an eight-foot pole, anchored by four guy wires, to which is attached an eight-strand loop of 1/4" rubber about three feet long, the tail end of the

(Continued on page 110)



To: LSF Executive Board  
P.O. Box 39068  
Chicago, Illinois 60639

I, \_\_\_\_\_ (please print), will support the philosophies, concepts and criteria set forth in the Bylaws of THE LEAGUE OF SILENT FLIGHT give notice herewith of intention to attain Level 1 of the LSF Soaring Accomplishments Program, and by so doing, earn full recognition and privilege of membership.

(Signature)

Name and Address: \_\_\_\_\_

AMA (or other FAI Affiliate) License or Membership No. \_\_\_\_\_

FCC (or other) Radio Operator's License No. \_\_\_\_\_

NOTE: When correspondence requires a reply, enclose 25 cents for return postage.

# SUPER FLYER!



**It's here, the first  
ready-to-fly aerobatic plane.**



## SUPER STUNTER

An aerobatic plane you don't have to build? You bet! It's the big, beautiful, 31-inch wingspan Super Stunter Bf-109 Messerschmitt, from Cox.

No more hours of kit building, doping, painting, waiting. Just attach the unique foam shell wings and landing gear. Fuel and start the powerful, double-ported Cox .049 engine, and in *minutes* you're ready for the wildest aerobatic flight ever.

It's easy to learn Loops! Figure Eights! Split S's! Inverted Flight!

Fuselage is high impact styrene. The special stunter tank feeds fuel smoothly in any position.

Spend your time flying — not building! Spend your time with the Super Stunter. At your hobby, toy or department store now.



## Go Cox

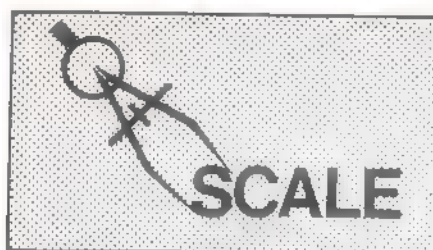
**L.M. COX MFG. CO., INC.**

1505 E. Warner Ave., Santa Ana, Calif. 92705 A Subsidiary of Leisure Dynamics, Inc.

Send for a color brochure of Cox gas-powered planes, cars, trains and accessories. Address Dept. AA-9.







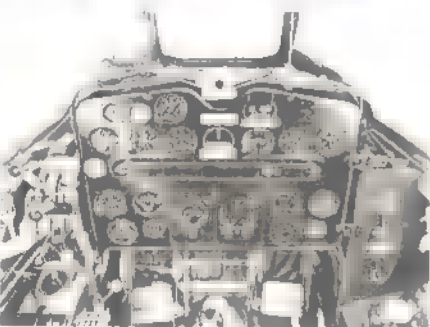
## CLAUDE McCULLOUGH ON RC

**Photo Finding:** A good collection of pictures of the prototype is essential in designing and building a scale model. If it is to be used in competition, AMA rules also require photos of the actual aircraft modeled. Several years ago, this column featured a section called "Scale Date Sources," which listed some government agencies and other places from which photos could be obtained. Since a lot of this material is now obsolete, an up-dating with additional information should be of value to both old and new readers.

In writing for photos or information, it is important to provide a complete description of the subject as possible. Some of the file researchers are not aviation oriented, so list full aircraft designations, with serial numbers if available. Include number or letter codes of the particular group or squadron, if known. State the year or approximate time span of the plane's operation. The more the choices can be narrowed down, the more likely the exact shots you need will be delivered.

Although the government files have good sections on individual aircraft types, there are generally other shots of the same airplane listed under other titles, such as crews names, unit designation or in connection with an historical event.

Coverage ranges from extensive to non-existent, depending on the subject. For instance, when I asked the National Archives for photos of the rare (two planes built) Douglas TB2D, they reported they had none, but said "several thousand" could be provided of the Douglas TBD, which was an operational aircraft. This is not indicative of lack of coverage of experimental types, however, for they had many shots of the Douglas TBD, including close-ups and cockpit views.



In line with the recent government trend to make users of public services pay all the freight (and more!), prices of prints have risen steeply. Since they are of usually excellent quality and obtainable nowhere else, the dedicated scale nut will find them worth the money. The photo labs are busy and delays of three to six weeks and more are common.

To be absolutely certain of getting exactly the photos needed, nothing beats calling in person and picking them out yourself. If you live near the facility, are in the area on vacation, go to the address, state that you are doing aviation historical research and sweat out the minor amount of red tape necessary to get admission to the files.

If it is not practical to do this, the National Archives are most notable for their excellent file search report given in reply to mail inquiries. A form is returned listing photo numbers (with a full description of the subject) that seem to meet your requirements. Select those wanted and return the form with payment. Be reasonable, and don't ask for descriptions of dozens of photos if you are only planning to buy a couple.

A main attraction is their huge collection of Navy aircraft photos, since the entire files

of pictures taken prior to 1964 have been turned over to them. On some planes, sparkling clear photos of every detail, external and internal, are catalogued. Many other civilian and military types are covered, some in color. Write to: Still Photo Branch, National Archives, 7th and Constitution, N.W., Washington, D.C. 20408. 8 1/2 x 10" glossies are \$2.25 each. Photo copy per page is only ten cents each, so a selection could be previewed by requesting a photocopy of a particular photo before ordering a print.

The Air Force provides photos at a cheaper cost, but the hitch here is that no research service is provided. Money must be

(Continued on page 111)

**NEW AEROLYMPIC TEAM MEMBER:** Tragically, Bob Karlsson recently lost (crashed) his Scale Team entry, a rivet-for-rivet model of a Corsair. Bob spent a year patiently refurbishing this third place NATS' entry, using a full-size Corsair as a guide. We're sure that Bob will be back with an even better model real soon.

Because of this, Bob is relinquishing his berth on the U.S. Scale Team. First alternate, Walt Moucha has other commitments, so he will not be able to fly at Lakehurst. Therefore, Bob Wischer gets the nod as the third member of our team. Bob is a seasoned veteran, and will assuredly do well at the contest.

We mourn the demise of this beautiful masterpiece by scale maestro Bob Karlsson.



## WALT MOONEY ON FF

**A Journey:** In the first week of June, I was able to make a trip which, for an old time model builder (40 years yet), was like a pilgrimage to Mecca. The job at which I make my living sent me to Pennsylvania. While there, I was able to meet, for the first time, an old friend.

Bill Brown, the designer of the first successful model gasoline engine and the producer of CO-2 engines, lives in Pine Grove Mills, Pa. I gave him a call and was invited up to see Bill's operation. Bill's charming wife invited me to supper and, during the meal, I was introduced to the history of Brown Jr. Motors.

For the Juniors in model building, Bill Brown's story should be an inspiration. His father was an engineer and allowed Bill to use machine tools. However, when Bill decided to build a small gas engine, his father tried to convince him that it was an impossible task. Every evening he would tell Bill to quit wasting his time. If it could have been done, someone would have done it already, etc.

As Bill puts it, "You can imagine my father's chagrin when he came home one afternoon and I had it running in the basement." This engine was the beginning of the gas model airplane hobby. The important part of this story, from the Junior standpoint, is that Bill Brown was only 13 1/2 years old when he made the first successful engine!

Bill is now in the midst of a production run of 1000 two cylinder CO-2 engines. He kindly took me through his shop and showed me the tools, and the way that they are used to make the little jewels. His operation is only a two-man shop, so getting tooled up for production has taken some time. Most scale modelers are impatiently waiting for the results.

The evening that I visited Bill, the State College RC Club had a scheduled meeting. Although Bill has never built an RC, he says he'll always be interested and has been a member of the club for 12 years. He loaded up his car with CO-2 models to demonstrate

in the college gym and off we went to the meeting.

There are no finer people than model builders, and that the members of this club all love and respect Bill was at once obvious. Several members had scale models at the meeting. George Gurney had an almost complete 50" span Taylorcraft, based on the Comet kit. He intends to power it with the new CO-2 twin and fly RC indoors. Al Neissner has a slightly smaller, lightweight Aeronca built for the same mission.

After the meeting, Bill Brown demonstrated his models. A Piper Super Cub, powered by a single cylinder CO-2, did over a minute under about a 25' ceiling. A kit-built Piper Cherokee flew well. Then came the really great Comet kit-built Piper with the twin cylinder CO-2. This is at least a 30" span model—much larger than I would have thought you could fly in a gym. Bill let it ROG and it flew in smooth stable circles for almost two minutes, coming down to a smooth landing and roll out.

Besides the CO-2 twin, Bill is also trying to develop a more convenient loader than the seltzer bottle cartridges which the present loader uses. These are good for six-ten flights with the single cylinder CO-2. Bill's charger of the future uses a CO-2 reservoir from a fire extinguisher. It will give a couple of hundred flights. This, Bill says, is still under development and not ready for production.



The man who built the first practical production model engine. Bill Brown is still at it with CO-2 power.



Peck Polymer has added a classic to their Peanut line. The Nesmith Cougar is a smooth, stable flier.

**Fresh Peanuts:** Bob Peck has two new kits on the market. Both are well tested Peanut Scale designs. One is the Andreason BA4-B sport biplane and the other is the Nesmith Cougar.

The Cougar was designed by Clarence Mather whose original always flew superbly, until it finally did 9:29 (flying O.Q.S.) on an official flight at a Peanut Scale contest. The Peck kits are good. Their plans are very complete and include a scale three-view. The wood is carefully selected. Plastic props and

(Continued on page 112)

Bill Stroman flew this well-detailed DH 5 at the Las Vegas New Year's Contest.



# Expect more from Pro Line

Engineering know-how plus YOU in combination with a PRO LINE R/C System. That's why more PRO LINE radios have been in the finals of major pattern contests than any other brands combined. This consistent reliable performance will soon be available for sport or competition flying in a new 3-channel system. Why settle for less? PRO LINE'S professional skill at your fingertips—you'll be in control!

## Write Pro Line:

PRO LINE ELECTRONICS, INC.  
10632 North 21st Avenue, Suite 10  
Phoenix, Arizona 85029 DEPT. AAMC94

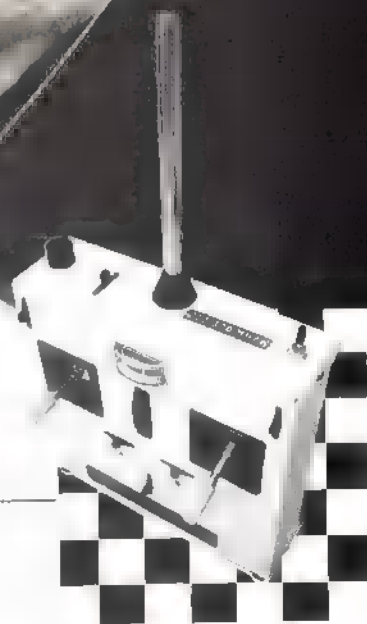
Gentlemen: Please rush me your free brochure "A Guide ■ More Effective Radio Control."

☐ I am just starting RC. ☐ I have been in RC for \_\_\_\_\_ years. System used \_\_\_\_\_  
☐ Activity engaged in (Pattern, Sunday Sport, 1/4 Midget, Formula 1, Sailplane, etc.) \_\_\_\_\_

NAME \_\_\_\_\_ AGE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_





# SAILFISH

One of the most beautiful sailboats you ever saw  
 with the finest construction  
 is amazingly small. The Sailfish  
 features: Translucent fiberglass hull  
 like a real boat. Built-in mast  
 and ready to launch and sail  
 into sleek white hull. Fine  
 construction. Rigging with  
 Polyester Dacron. 1/2 inch  
 Mast. Cast brass fittings.  
 1/2 inch. Rigging cord.  
 Mast & Boom Material. 1/2 inch.  
 Rudder and keel with  
 1/2 inch. 1/2 inch. 1/2 inch.  
 1/2 inch. 1/2 inch. 1/2 inch.  
 1/2 inch. 1/2 inch. 1/2 inch.  
 1/2 inch. 1/2 inch. 1/2 inch.

HEIGHT 1 1/2"  
 LENGTH 3 1/2"  
 BEAM 1 1/2"



KIT #23

**\$12.95**

STERLING MODELS • BELFIELD AVE. and WISTER ST. • PHILA. PA. 19144  
 If no dealer available direct orders accepted—with 10% additional charge for  
 handling and shipping (\$8.00 minimum in U.S., \$1.25 minimum outside U.S.)  
☐ Catalog of entire line of airplane control line model kits B/C scale and  
 Trainer kits, boat model kits, accessories, etc. 25c enclosed  
☐ Secrets of Model Airplane Building including design, construction,  
 carving, finishing, flying, adjusting, control systems, etc. 35c enclosed  
☐ Secrets of Control Line and Carrier Flying including preflight, sailing,  
 stunting, Carrier rules and regulations, Carrier flying hints and control  
 line installation instructions 25c enclosed No checks. Only U.S. money  
 orders or currency accepted

Name \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



**H.M.S. BOUNTY**  
Kit ■ Length 10½"

### Authentic Replica Series

Every kit contains a machine carved hull, genuine metal castings of Cannon, Life Boats, Anchors, Steering Wheel, Stern Castles, Figurehead, and many other castings as needed. Also Chain, Black and Tan Rigging Line, Printed Cloth Sails, Decals, Display Pedestals, and all the rest that ■ to make an easy-to-build full rigged sailing ship that will gain in intrinsic value ■ years go by. ■ truly worthy of a place in your home or any museum.

## ON THE SEA

### WOOD SHIP MODEL KITS

*with carved hulls,  
metal castings & cloth sails*



**GOLDEN HIND**  
Kit G5 Length 9¾"

### PIRATE BRIG

Kit G6 Length 10½"



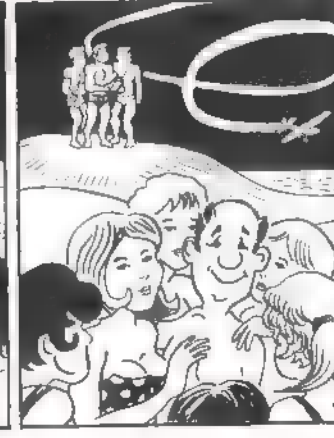
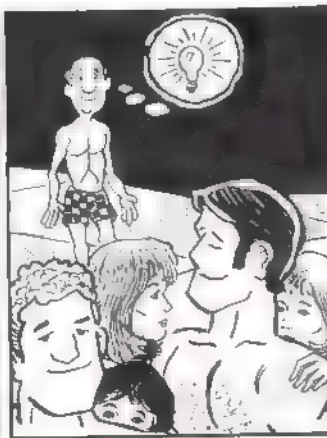
Re-live history as you walk the deck with Captain Bleigh and Mr. Christian on the Bounty. Sweep the seas of the Spanish Armada with Sir Francis Drake's Golden Hind. Join the infamous pirates ■ they attack Merchant Shipping and exact ransom with their swift and deadly vessels. All this in amazingly easy to build kits that feature new simplified rigging and modeling techniques. Unusually complete kits include easy to read and detailed step-by-step plans and instructions.

**All  
Just  
\$6.95 ea.**



## 'ACE'

BY DAVID ILLSLEY





What's a

# GAZARIATO

*For The Sport Flier...*

*...And Especially the Newcomer  
to .60 Radio Control Flying*

If you are a Sport Flier or a newcomer to R/C then this is your ship. It's a good looking plane that builds easy — goes together fast — plenty roomy for any equipment — rugged for hard use — flies comfortably — and is just the right size for a .60.

**AND ABOUT THE KIT ITSELF**... Fuselage sides are one piece with ply doublers back past the wing. Only a few bulkheads and a shaped top make for almost "instant fuselage." Torsion main gear & sprung nose gear (or fly it as a tail dragger). Aluminum

engine mounts, etc.

The complete wing is built on the work bench without having to remove it which eliminates warps — All parts are die cut, carved, etc. Balsa sheet cover keeps warps out and makes for a tough wing. Tapered Strip Ailerons are simple to install. Wing is installed just like the low wing jobs, using dowel pins and nylon screws in maple nut block like it ought to be. No rubber bands to deteriorate or slip or tear up.

Elevator and Rudder are sheet. Stab & Fin is built up and sheet covered to keep it flat — so that's it, a fine kit of a fine ship.

**\$49.95**

## LEPERE L. U. S. A. C.-11

*(Continued from page 21)*

ing blocks to a building board, so that the spars rest on the blocks. Now slip the ribs onto the spars and temporarily fasten the spars to the jig blocks. Glue up everything at one time, aligning the ribs with a T-square to keep everything straight. All four wing panels are the same length and shape, except for the angled trailing edge on the top wing. This is cut after the basic structure is assembled.

Laminate the tip bow over a plywood form, which is cut to match the inside curve of the wing tip. Use four pieces of balsa, which have been soaked in hot water. Both the front and rear spars on all wing panels extend into the fuselage, where they are bolted to plywood plates fitted with blind nuts. Cut out the ailerons, add the 3/16" balsa caps and hinge them to the wing panel.

The curved parts of the tail group are made like the wing tips. When laminated and assembled, sand the horizontal tail feathers to a lifting airfoil shape. Because the tail group cross section is so thin, spruce is cautiously used in some of the construction.

The nice thing about the Lepere rigging, which is also unique, is the one-piece wing struts. These insure proper incidence between the wings. Make these from plywood, faced all sides with balsa. Epoxy the struts to the spruce compression members between the spars.

It is the scale details and "add-ons" which make the Lepere so interesting. Make the top radiator from aluminum tubing. It is removable, to gain access to the top wing bolts. Make the windshield frame from .020 aluminum, and rivet .010 acetate on the inside of this, using Sig scale rivets. The corner posts, at the frame bends, extend into the fuselage for greater strength.

The Lewis machine guns are assembled from the popular Williams Bros. plastic kits. There are no such kits for the

**ABOVE:** The Marlin .30 cal. machine gun, to scale. **CENTER:** This awkward placement of the Marlin guns might have made pilots wonder just whose side the installer was on. **LEFT:** A pair of Lewis guns for the observer.



# OR

Why it's a big beautiful  
68" Super Fledgling for 60's

KIT FS-32  
SPAN 68 in.  
LENGTH 52½ in.  
AREA 800 sq. in.  
ENGINES .50 to .61



STERLING MODELS • BELFIELD AVE. and WISTER ST. • PHILA. PA. 19144  
If no dealer available direct orders accepted with 10% additional charge for handling and shipping. (Add minimum in U.S. \$1.25 minimum outside U.S.)  
☐ Coloring of entire line of airplane control line made with 8 C-cords and 12-line. Also bear model life accessories all 25¢ enclosed.  
☐ Details of model airplane building including design construction regarding fuselage, wing, adjusting control systems all 25¢ enclosed.  
☐ Details of Control Line and Control Flying including preflight, starting, stopping, Carrier rules and regulations, Carrier flying hints and control line installation instructions 25¢ enclosed. No checks. Only U.S. money orders or currency accepted.

Name \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**S**terling  
MODELS  
INC.  
PHILA. PA. 19144-USA

Marlin guns. Make these from brass tubing, brass sheet and balsa, using the photos as a guide.

Because of the large wing and thin airfoil, the flying wires provide necessary bracing. To simulate the flat wires, use strips of .020 aluminum sheet, sheared to 5/32" width. Proctor streamline wires are slightly small, but could be substituted.

Covering was done with the old-stand-by, silk and Aero Gloss. The fuselage should be completely covered, except for the metal and fiberglass parts. The undercambered wings require adhesion of the silk to each rib. Do this by poking through the silk with a pin dipped in glue. The tiny holes will cover after a few coats of dope.

After brushing the first coats of clear, spray the remaining rib coats. When the silk begins to fill, dope on the simulated rib reinforcing tape, which is cut from light silkspan tissue. The photos of the original indicate that these strips are not as shiny as the rest of the covering, so don't use too much clear on them.

The roundels and stripes are masked and sprayed first. The Aero Gloss colors are Swift White, Fokker Red and Curtiss Blue. Mix the Light Earth color from white, Cub Yellow and Camouflage Tan. The photos show a shiny finish even though, later, these same colors were matte finish on war planes.

After all color painting, wet sand the model with 600A, and spray two coats of Aero Gloss Clear. The rub-on lettering is Para-Type 33064, 11321 and 11072. Spray a light coat of clear over the lettering for protection.

The instrument faces were cut from an actual Lepere cockpit photo, which was enlarged to scale. Some of the dials are vertical reading—quite an innovation for 1918. Frame the vertical dials with 1/32" plywood and set the round instruments in brass tubing.

#### FLYING

The first flight of the Lepere indicated some tail-heaviness. The CG was located per the prototype airplane, but this

(Continued on the following page)



ABOVE: Real bungee cords spring the landing gear. Wire wheels are covered with sticky Cover-rite. CENTER: Detail of the metal louvers and flying wire attachments. RIGHT: With so few breathing ducts, the engine needs a heat sink.





# the ULTIMATE in Radio Control Equipment

## EDSON Socket Head Hardened Bolt Set

EDSON recommends our  
Socket Head Bolt Set, . .  
. . . for mounting your engine

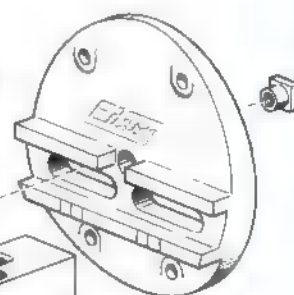
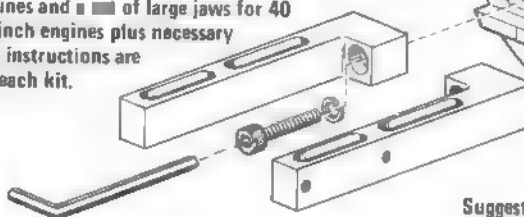
Package includes four bolts,  
four serrated washers and four  
lock nuts, and one Allen  
wrench. Available in two sizes;  
Edson Series HD-5 (5-40x1"lg.)  
or HD-6 (6-32x1"lg.)

Cat. No. HD-5, HD-6

Suggested Retail Price/Set - \$1.19

## EDSON Motor Mount Assembly

Edson has developed this universal, adjustable motor mount to fit  
all model airplane engines from 15 cubic inches thru 80 cubic  
inches. The Edson hardened cast aluminum motor mount  
comes supplied with a set of small jaws for 15 thru 35  
cubic inch engines and ■ ■ ■ of large jaws for 40  
thru ■ ■ cubic inch engines plus necessary  
hardware. Full instructions are  
included with each kit.



PAT. PENDING

Cat. No. M-50

Suggested Retail Price - \$11.95

**NEW**

**Radio Control Products ■ ■ ■ from**

**AVAILABLE AT YOUR LOCAL DEALER**

**Edson**

ENTERPRISES INC.

381 Franklin Avenue  
Belleville, N. J. 07109  
Tel. —(201)751-2615

## LEPERE L.U.S.A. C-11

(Continued from page 73)

was apparently in error. After correcting the balance, no other changes were necessary.

It is interesting to note that the ST 71, swinging a 14 ■ 4 prop, is more than enough to fly the model, so most of the popular 60-size engines should be adequate. The Lepere has shown no unusual handling problems. Because of its size, the model should be flown with a smooth touch. The massive wing has a tremendous lifting capacity, ■ try to avoid sharp pullouts from dives and spins.

The Lepere has proven to be an excellent performing scale machine. Its large size and low wing loading contribute to slow, graceful maneuvers, which are easily placed exactly where you want them.

WHAT'S THE NEWEST SPORT?

■ PAGE 11 FOR THE ANSWER

## A LA RECHERCHE DU LEPERE

(Continued from page 20)

and stopped. Now, re-setting in the seat and pulling on heavy leather gauntlets against the biting cold, Cottrell gave the panel and the sky a final once over. And gently eased the throttle forward.

Turning out of the pattern, Cottrell headed the Lepere for 3000 feet, and took his time about getting used to the feel of the ship. *Ailerons? Good. Not stiff. Good response. Elevator? O.K. there, too. Rudder? Oh nice. What th— Uh uh, vibration!* Instinctively, he snapped a look behind him. *Construction problem? Rigging problem?*

But, reassured that nothing was in any danger of falling off, he turned his attention back to the instruments. And became fascinated by a slow, steady rise on the oil temperature gauge. *Don't like the looks o' that!*

He put the Lepere into ■ shallow dive to see if a little more cold air across the radiator might help the situation.

The engine cut out.

He tried it again.

It cut out again.

O.K., have it your way.

Although Cottrell decided he could live with the situation, he couldn't stop thinking about it, and the possibility of fire. As a precaution, he cut the fuel to the carburetor. And waited. *Too slow! Too slow!*

Then, letting the fuel flow again, Cottrell and the oil temp continued their slow, steady rise over Paris. The oil temperature levelled off at 100°; Cottrell at 3000 feet.

Now, with air combat in mind, pilot considered airplane: *Visibility overhead? Good. To the side? O.K. Down? Marginal!*

Blind to what was directly below him, the reconnaissance pilot in Cottrell labelled that a distinct disadvantage. He looked around the fuselage and wings for ■ likely place to stow his precious cameras.

Forward visibility wasn't anything to shout about either but, since he'd been

## D&B Proudly Presents: "THE CLOSEST THING TO SCALE

THAT EYEBALL SCALE CAN BE"

\$119.95 for P-40

1 1/2" SCALE KITS: P-51D, A6M2 ZERO, P-40 WARHAWK

Features: Full interior cockpit, all exterior fairings, sliding canopy, scale L.G. motor mount, TANK, wing tip lights, all *interior* control horns, wheels, tail wheel, DECALS, plans, 28 page construction manual, L.G. fairings, all rods, hardware pkge., fiberglass fuselage, foam wings & stab, fiberglass wing tips, all sheeting for wing & stabs ■ fiberglass wing tips, full flaps.



Span 60"

Wt 6 3/4 lbs.

A FULL LINE OF DECALS FOR  
1 1/2" & 1 3/4" SCALE  
\$4.95 and \$5.95

WWI

French-AEF  
British  
German

WWII

German  
Japanese  
U.S. Army-Navy

British  
U.S. Marines  
Flying Tigers  
U.S. Pre-WWII

CIVILIAN DECALS

5/8" Height to 6" Height  
Six Colors: Black, White, Red,  
Yellow, Navy & Green.  
N.C. AMA + Numbers  
\$1.19 to \$3.59

ACCESSORY KITS

P-51 Cockpit Kit \$7.95  
P-51 Exterior Kit \$5.95  
P-40 Cockpit Kit \$6.95  
P-40 Exterior Kit \$4.95  
Will Fit Top Flite kits

**D&B Model Aircraft Co., Inc.** 51 COLLEGE LANE DARTMOUTH, MASS. 02747

SEND \$5.00 FOR FULL CATALOG

SUPERTIGRE  
ADVERTISEMENT

TERRY PRATHER

GENTLEMAN  
SPORTSMAN  
CHAMPION



## TERRY PRATHER

From where ■■ sit here at World Engines, we would like to observe that Formula 1 is certainly an exciting event to compete in. You are not just running against the stop watch but there ■ always the controversy of cuts, starts, plus a seeming million other things that might cause you to have to go into a fly-off when you think you have already won the race. It is in this kind of a sport that ■ man like Terry Prather really stands out—he is a fine competitor and I cannot think of anyone I would rather have using Supertigre engines than Terry. Since he does use them, ■■ are justifiably proud. Here is ■ letter than ■■ received from Terry that tells of the competition experience he had with Supertigre engines in Formula 1 in the last season.

"Dear John:

The following ■■ summary of the success I have had this year using the Super Tigre Engines.

|                         |                  |
|-------------------------|------------------|
| 1st Place Tangerine     | Orlando, Florida |
| 1st Place Valley Flyers | Oxnard, Calif.   |
| 1st Place Birds Club    | Whittier, Calif. |

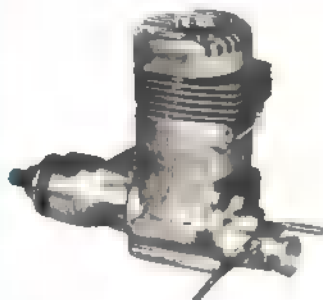
Terry Prather ■■ a new speed record for Pylon ■■ the "73 Tangerine. Time: 1:17.2.

|  |                  |
|--|------------------|
| 2nd Place San Gabriel Club             | Whittier, Calif. |
| 2nd Place N.M.P.R.A.                   |                  |
| National Championship Race             | Van Nuys, Calif. |
| 2nd Place N.M.P.R.A.                   |                  |
| National Point Championship            |                  |
| 2nd Place So. Calif.                   |                  |
| N.M.P.R.A. District Point Championship |                  |

Considering we have only had 3 months to work on our new X-40 engines, I feel we have made a rather impressive showing with Super Tigre.

I feel the new X-40 Super Tigre made a very outstanding showing at the recent N.M.P.R.A. Championship Race. Although not winning 1st the X-40 proved it has the potential to win. The X-40 turned in the most consistent low times varying between 1:21.6 and 1:26.6 for ■■ heats on our 2½ mile course.

Sincerely,  
Terry Prather



SUPERTIGRE X-40  
\$65.00

# WORLD engines

8960 ROSSASH AVE., CINCINNATI, OHIO 45236 • TELEPHONE (513) 793-5900 • INTERNATIONAL TELEX 214 557



A CONSOLIDATED FOODS COMPANY • RESPONSIVE TO CONSUMER NEEDS





Write for catalogs

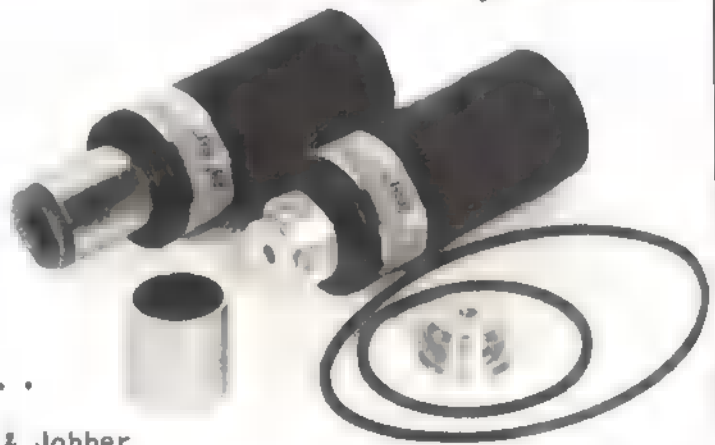
# The "VERSATILE" "74" Challenger II for BOATS, HELICOPTERS, AIRCRAFT and R/C CARS.

New **5** YEAR GUARANTEE....

AVAILABLE NOW thru your Local Dealer & Jobber.

**SONIC-TRONICS**

INC. 2 South SYLVANIA AVE. PHILA., PENNA. 19111



thing the Air Service was working on. By 1924, Wright Field files were silent as to their whereabouts. And today, the only remaining Lepere (SC-42133) is in France's Musee de l'Air.

There was a little-known civilian version of the Lepere built in 1920, by Waldo Waterman, for L.C. Brand of Los Angeles.

Consider this. In 1920, the U.S. Army's Lepere L.U.S.A.C.-11 was to military aviation what a late 1960s fighter is today. And the fact that a wealthy businessman could have built is somewhat like the wealthiest man in your town having someone lay up, say, a Grumman Tom Cat just to toddle around in.

In 1920, Waterman Aircraft Company was located at Venice Airport, not too far from Los Angeles. In those days, Venice, a community, was a real estate developer's dream of Venice (Italy cum California), with canals and housing developments, parks, terraces, the whole 1920's schtick. Venice Airport was an early day version of a fixed

base operation, and "home" to a varied assortment of struggling airplane builders, attached and un-attached fliers, test pilots, barnstormers, sky writers, stunt pilots and happy hangers-on.

**A**t the time Waterman got the order from Brand, he hired L. Morton Bach to help in the project. (Mort needed the money in order to complete an airplane of his own that was going up in another corner of the airport.)

Although he's not positive, Mort feels pretty certain that Waterman bought the Lepere plans from the Packard Company, the original prime contractor on the airplane. Mort worked on the project for about three or four months (until his own OX-5 powered airplane was finished, and then he and Clarence O. Prest, in line with the times, took off from Venice Airport to attempt a Mexico-to-Siberia long-distance flight).

Mort recalls that the L.C. Brand Lepere (as it became known) was built

around the same Liberty 12 as its military counterparts, and followed essentially the same overall plan-view as the military version. Obviously, there was the exclusion of ordnance in order to adapt it to civilian use.

About the time the airplane had been roughed in, Bach and Prest took off for the frozen north. Then, perhaps a month or so prior to the completion of the airplane, Waterman hired another airport resident to do the testing. This was Gilbert G. Budwig, who, since quitting the Air Mail the year before, continued gambling with life by doing experimental test work. Until actual testing began, Budwig worked as a mechanic installing the fuel system on the airplane. It probably saved his life.

One of the modifications to the Lepere plans had been a considerable increase in fuel capacity. The pilot's seat was, actually, a huge gas tank shaped like an arm chair—the "arm rest" part being more fuel (not unlike the Albatros CVs). This seat-tank system was connected to an air-driven pump located

**hinge point** 6/95¢  
15/\$1.95

**horny hinge point** 4/79¢

PLASTIC "ARF"  
SCALE BUILT UP  
BALSA FOAM  
AILERON  
FLAP  
FLAP  
EXTERNAL HINGE POINT

**robart**  
P.O. BOX 122 WHEATON, ILL. 60187

**mini hinge point** 6/89¢  
15/\$1.79

**hinge point flats** 6/79¢  
15/\$1.49

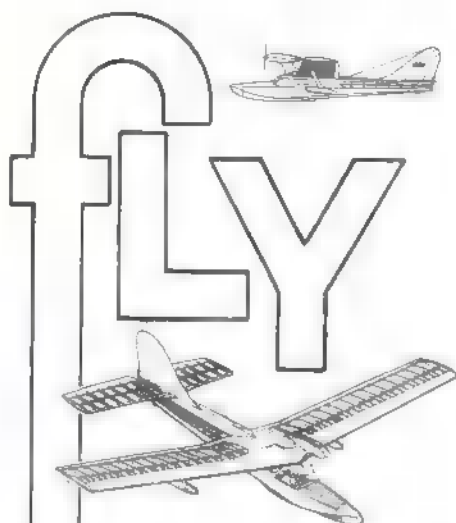
**robart**  
P.O. BOX 122 WHEATON, ILL. 60187

**hinge point drill jig** WITH SPECIAL DRILL \$2.98

THE HINGE POINT DRILL JIG AUTOMATICALLY FINDS THE CENTER. GUIDES THE DRILL TO INSURE PERFECT HINGING

**super shoe** \$2.98

**robart**  
P.O. BOX 122 WHEATON, ILL. 60187



Cat. No. Design Name Price

#### HAND LAUNCH

|      |              |        |
|------|--------------|--------|
| SG-1 | Thermic Dart | \$ .89 |
| SG-2 | Thermic 18   | .59    |
| SG-3 | Thermic 20   | .95    |
| SG-4 | Thermic "B"  | 1.39   |
| SG-5 | Thermic Trio | .95    |

#### TOWLINE GLIDERS

|     |                 |         |
|-----|-----------------|---------|
| G-1 | Thermic "C"     | \$ 2.49 |
| G-2 | Thermic ■       | 4.95    |
| G-3 | Thermic 50-X    | 4.95    |
| G-4 | Thermic 72      | 12.50   |
| G-5 | Thermic Trooper | 1.69    |
| G-6 | Nordic 72 (A/2) | 12.50   |
| G-7 | Thermic 36      | 2.69    |
| G-8 | Top Kick (A/1)  | 6.95    |
| G-9 | Talon (A/2)     | 16.95   |

#### POWERED

|     |      |         |
|-----|------|---------|
| R-2 | Hawk | \$ 2.39 |
| R-3 | Lark | 3.25    |

#### FREE FLIGHT

|      |         |         |
|------|---------|---------|
| FF-1 | Tornado | \$ 7.95 |
|------|---------|---------|

#### JETEX F/F DESIGNS

|     |         |         |
|-----|---------|---------|
| J-1 | Cougar  | \$ 1.49 |
| J-2 | Cutlass | 1.49    |
| J-3 | Jet 50  | 1.29    |

#### RADIO CONTROL

|       |                |         |
|-------|----------------|---------|
| RCG-2 | Thermic 50 R/C | \$ 6.25 |
| RC-5  | Navigator      | 17.95   |

#### FLYING SCALE GAS

|     |                     |         |
|-----|---------------------|---------|
| S-1 | Mustang F-51H       | \$19.95 |
| S-4 | Rearwin Speedster   | 14.95   |
| S-5 | Cessna 170          | 8.50    |
| S-6 | Piper Super Cruiser | 8.50    |

#### CONTROLINE GAS

|      |             |         |
|------|-------------|---------|
| CL-3 | Sabre Stunt | \$19.95 |
| CL-4 | Shark "45"  | 29.95   |
| CL-5 | Shark "15"  | 8.95    |
| CL-6 | Dolphin     | 18.95   |

(\*) Indicates Radio Installation shown

If no dealer is near you, direct orders may be forwarded. Add 10% additional for handling and shipping costs, 80¢ minimum within U.S.A., \$1.25 minimum outside the U.S.A.

**Jetco C. A. ZALE CO. INC.**

Lexington Ave., Brooklyn, New York 11221

under the fuselage.

Also, in front of the pilot, and extending to his lap and down to his shins, was a second "main" tank. This tank was connected to another air-driven fuel pump under the fuselage. The pilot was encircled in gasoline. (All this added weight aft of the CG made the airplane a notorious ground looper.)

Anyway, based on the drawings given to him, Bud installed a flood-and-return fuel system into the Lepere. Depending on which of the tanks was in use, one or the other of the fuel pumps (two handles located on the floor) would pick up fuel from the tank and pump it up to a tank located in the center section of the airfoil. From this airfoil tank, there was a fuel line leading down and turning forward to the Liberty's two carburetors.

On the test flight, Bud was perhaps 30 feet off the ground when the engine quit with a sound that indicated to him that it was not getting fuel. Assuming that one of the air-driven pumps had failed, he immediately ducked down into the cockpit to turn on the second pump.

The engine re-started immediately, but—

The center section airfoil tank burst, spraying out of the trailing edge of the tank. The exhaust pipes, located about 18 inches below, began shooting out four or five feet of flames. Oh, happy day. And, because the area around the airport was considerably built-up with housing, there was no place for Bud to go but up.

Carefully climbing to 2000 feet, he levelled out and throttled back (in order to cool the engine off as much as he could), and hoped that, when he switched off the engine, it wouldn't backfire on him.

When he dared chance it, Bud held his breath and switched off the ignition. He was living right that day. There was

no backfire, and he was able to glide to a dead-stick landing. (And, it was here that he found out about its ground looping tendencies!)

What had caused the accident was that during roll and lift off (with the fuel from the airfoil tank flowing straight down and forward to the carbs as it did), the momentum of takeoff prevented the fuel from reaching the carburetors. This problem was corrected by the installation of a small two-gallon tank placed forward of the engine and used during the takeoff sequence.

**B**y the time this and other deficiencies were corrected (although it would always be 400 lb. overweight), Budwig was hired as L.C. Brand's personal pilot. While the plane was delivered with this corrected fuel system, within a month of delivery to Brand, a whole new fuel-line system was installed by Ed Barnhart (later, builder of the Barnhart "Wampus Cat"). This new system, for the following two years, never gave Bud any trouble.

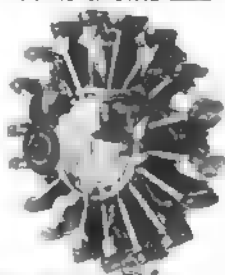
Barnhart also fabricated a new and larger tail, but its ground looping habit was never resolved. However, Budwig found a way to live with it. After touch-down, and as soon as it started in on its here-I-go-again turn, he'd hit full power, full rudder, and eat up more ground than a 707.

The Waterman (L.C. Brand) Lepere was a beautiful airplane—mahogany finish with six coats of varnish hand rubbed, a warm contrast to its buff-colored linen wings—but definitely not one man's favorite airplane. When Brand died a few years later, he willed the airplane to Lowell Smith, one of the Douglas World Cruise pilots. Kinda makes ya wonder why; doesn't it?

Grateful acknowledgements to: Clifton C. Cottrell, for the use of his test report (Although the 24th Aero Squadron, as a unit, was considered too inex-

## GOLDEN AGE ACCESSORIES

### SCALE ENGINE ■■■



1 1/2" SCALE  
WRIGHT J-5 "WHIRLWIND"

### ENGINE CYLINDERS

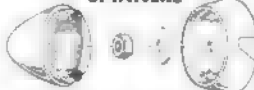


P & W "WASP"  
1", 1 1/2", 2"



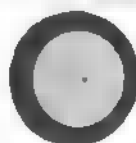
UNIVERSAL  
3/8", 1/2", 3/4"

### SPINNERS



1 1/2" THROUGH 3 1/2" DIA.

### WHEELS



3/4" THROUGH 5" DIA.

### SMOOTH CONTOUR WHEELS



3/4" THROUGH 5 1/4" DIA.

### SCALE PILOTS



RACING



STANDARD



SPORTSMAN  
AVAILABLE IN 1"  
THROUGH 2 1/2" SCALE

SEND 25¢ FOR COMPLETE ILLUSTRATED CATALOG

DEPT. AM • 181 PAWNEE STREET  
SAN MARCOS, CALIFORNIA 92069

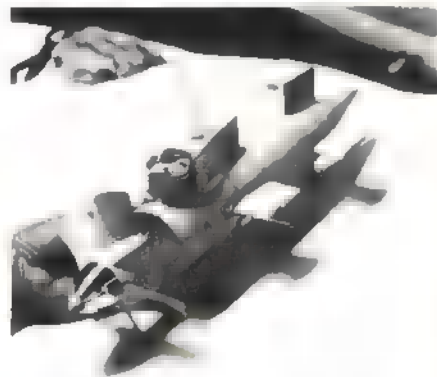
**WILLIAMS**  
BROS.



perienced to participate in the St. Mihiel Offensive, Lt. Cottrell, on loan to the 91st, was among pilots of the 24th who flew reconnaissance preliminary to the opening guns of the Offensive, and for the Meuse-Argonne Campaign that followed.); L. Morton Bach; Gilbert G. Budwig; Northern California Chapter, Cross & Cockade.

# A DUCTED FAN ME 262 A-1a

(Continued from page 4)



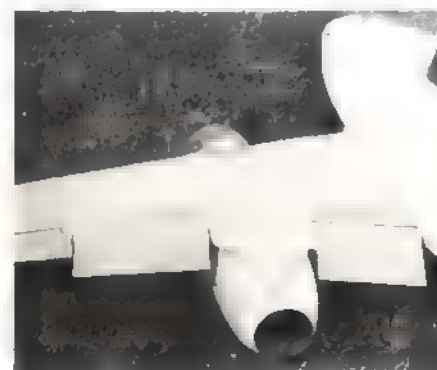
The HP ■ fits neatly in a tailored inner pod. The pod accommodates a 10-oz. tank. The fan is hand-carved from basswood.

from the fiber blades in a ply hub route favored several years ago) we got reasonable thrust quite readily, and the 6.2 lb. mentioned in the column was achieved two years ago, with an HP 40, running on Fox 40-40 fuel (40% nitro). This was with a regular small-bore RC carburetor and no pressure, and, here's the vital thing, this was measured while mounted inside the model, ■ 62" long Hunter.

We experimented at great length with different carburetors, to find the greatest bore area (and thus power) the engines would tolerate without using pressure. Ultimately a bore around .290-.300" was found to be optimum. Idle speeds of 4500 are normal when fanned for a top end of 19,000-19,500: this with the HP 40 engine and Mag III carburetor bored to .290".

We also flew a CL model, with our engine mounted on top in order to time the speed. This showed which intake/efflux area ratios, fans, etc., were the most efficient under actual flight conditions. This same model, and also ■ RC test ship, was flown using pressure with a larger bore carburetor (.340"). Both were considerably more powerful.

The Fowler flap mechanics are a direct copy of information from Luftwaffe service manuals. They move aft over 1" before lowering.



## Proven Performance...

# ROSS POWER

ROSSPOWER  
1.8 SIX

ROSSPOWER  
1.2 FOUR



ROSSPOWER .60 TWIN

ROSSPOWER INLINE .60 TWIN

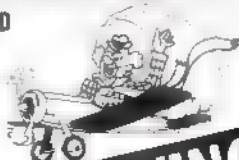


ROSSPOWER .61 R/C

AVAILABLE AT YOUR LOCAL DEALER

ROSS POWER INC., 89 E. Fulton Ave., Roosevelt, N.Y. 11575 (516) 548-1170

ROCKLAND  
COUNTY  
RADIO  
CONTROL  
CLUB



4th ANNUAL

# MODEL FLYING CIRCUS & AUCTION

SUNDAY, OCT. 20, 1974 • 10 AM TO 6 PM • RAIN OR SHINE

TAKE EXIT 10 PALISADES PARKWAY...  
FOLLOW ARROWS TO PHILLIPS HILL RD. TO

## RIPPLES OF ROCKLAND, NEW CITY, N.Y.

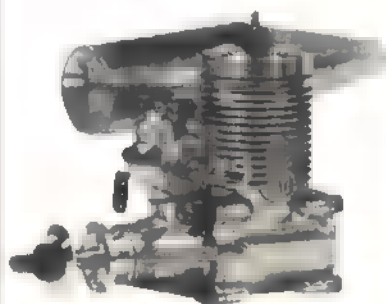
FLYING DEMONSTRATION  
PROMINENT MANUFACTURER DISPLAYS  
MODEL BUILDING INSTRUCTION  
SWAP SHOP • PRIZES

# HIRTENBERG HP 40's

"In A Class Of Their Own"

## HP 40 F

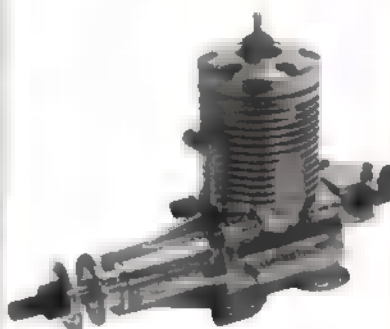
"The Mini 60"



- Excellent idle
- Leader in sport pylon events
- Proven competition pattern and sport engine
- Silencer furnished as STD. equipment

## HP 40 R

"The Pro's Choice"



- Winner at the Nats in U/C Rot Race & U/C Carrier
- Holds R/C Boat speed records
- Co-winners in FAI pylon at Nats

## HP 40'S . . . THE NEW BREED

Schneurle ported for maximum power  
Dependable handling qualities  
Old world craftsmanship and  
care throughout

AVAILABLE AT THE FAVORITE DEALER



**NELSON MODEL PRODUCTS**

6929 WEST 59TH STREET • CHICAGO, ILLINOIS 60638 • (312) 586-7101

## Happiness is...

...a dry radio!

Seal your radio box pushrods with GEM waterproof seals. Mount through 1/4" holes and up to 1/4" thickness. Small and lightweight. Made of silicone rubber and brass. \$3.75 each

## G.E.M. MODELS

p.o. box 342, dept. a  
broadview, ill. 60153  
tel. 312 / 279-2451



Complete R/C Boating Supplies

## SOLO-LAUNCH

How many times ■ you finish that special model—wanted to take it for a ■ flight and no ■ around ■ help launch it?

We have solved your problem! Now fly when you please without assistance!

Solo-Launch

\*keeps plane in place until your ready

\*fits in tool box

\*inexpensive and easy to make

For Plane Send \$2.00

■: Solo-Launch  
P.O. Box 02135  
Cleveland, Ohio 44102

Eventually, we came to the conclusion that regular suction feed provided plenty of power to fly a model and that the increase given by pressure was not worth the extra hassle of critical settings, difficult idling, etc. If we ever had a situation where more power was vital to the success of ■ model, we'd know where to get it.

With the latest motors and the current interior design, we can get over 7 lb. of thrust. Using pressure, larger carbs, more nitro and still more interior-design research, I believe that ■ lb. is not beyond possibility.

The pictures give an idea of the possibilities of models. Unfortunately, the 262 will not be ready in time to fly at the Nats as earlier hoped, but... next year?

I definitely will endorse Bob Violett's remarks concerning the excellent flight performance now possible with ducted fan airplanes, and look forward to ■ great surge of interest in this type of model.

## TORREY PINES

(Continued from page 8)

weed stubble would be to the planes, disced it the week before. His excellent intentions were almost disastrous. Every time someone put his foot down on the power-dry soil, he sank in ankle deep.

CD Kelly Pike managed to find a cat tractor, and at least had the paths down to the turn-arounds dragged. This didn't help much, but people could walk on it without too much difficulty. I will say that Kelly took a lot of good-natured kidding. However, it should be stated that during the previous winter when the site was selected, the field was great.

First launch was about 9:00 a.m. Saturday, which, by the way, was a beautiful sunny Southern California day. The event, ■ triathlon, is a six-minute maximum flight, with landings permitted on any minute. Points de-grade, in accordance with the AMA rules, from the exact minute, to zero points for the 1/2 minute. All landings are measured from 300 points for an exact spot landing. So there are (1) flight time points, (2) precision landing time points and (3) precision landing distance points for each of six flights. Now it is evident why it is called a triathlon.

The first landing set ■ precedent. The pilot made his final turn into the wind. Time was counting down 4 - 3 - 2 - 1 - 0; he was three feet above the spot. Zaaap, full down elevator. A cloud of dust, and a hearty Hi-Ho Silver Mono-Kote. When the dust had cleared away, there he was, right on the spot, buried clear up to the wings.

Sun and dust for the rest of the day. The camp shower was ■ popular place that afternoon and luck was with those who got there early—they got all the hot water. A first-class banquet, followed by some extremely beautiful color flight films of full-size gliders took up the evening hours.

Sunday, ■ standard Southern California winter day dawned gloomy and misty. At 9:00, the sun dried out the clouds for about 30 minutes. There was nothing but up during this time,



## MODEL ROCKETS

HOW DO I GET STARTED?  
HOW MUCH DO THEY COST?  
WHAT DIFFERENT MODELS ARE THERE?  
DOES CHUTE WORK?  
HOW DO THEY FLY?  
FIND OUT TODAY! SEND COUPON BELOW

CENTURI ENGINEERING CO.  
1988 C-94 PHOENIX, AZ 85001

RUSH ME YOUR 100 PAGE COLOR  
CATALOG TODAY! I HAVE ENCLOSED  
FOR POSTAGE & HANDLING  
(REFUNDABLE WITH FIRST ORDER)

NAME \_\_\_\_\_ AGE \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_ ZIP \_\_\_\_\_



and everyone who got into the air maxed. Then the wind came up and blew the clouds back in. Doug Boyd lost his Grand Esprit in the clouds three times, and still made a six-minute max. There was an amazing amount of lift under the clouds. The sun came out about noon and it turned out to be a beautiful day.

By 3:00 p.m. the contest was finished; everyone was heading over to the campground to collect the kids, dogs, sleeping bags, take down the tent, sweep out the trailers and RV's, wash faces and hands, and head for home: Los Angeles and surroundings for Harbor Slope Society, SULA (Soaring Union of Los Angeles), PSA (Pacific Soaring Assn.), San Fernando Valley Silent Flyers and the Long Beach Glider Guiders. The Arizona Soaring Club started east and the Torrey Pines Gulls southward to San Diego. Boy! Would that hot shower at home feel good.

"A great contest," I heard, "will you have another campout contest soon?" The camp owner confided, by phone the next day, that he really enjoyed us being there—he sold out every toy glider in his store. The reason for the phone call was to tell us that the owner of the contest site was impressed by the gentlemanly attitude of the contestants, and the manner in which the site was used and left, that he was seriously considering planting a site in grass, watering it, and using it for grazing during the year. Next spring, he will mow it just for the contest.

**NOW!** from *Tatone*

**\$4.25**  
**MUFFLER-MANIFOLD**  
for  
**COX .09 Engines**

**COX .049**  
**Engine Mount**  
**\$3.35**

**"HINGE IT"**  
HINGE SLOT CUTTING SET  
**\$3.25**

**TATONE PRODUCTS**  
1808 GENEVA AVE. SAN FRANCISCO, CA 94133

**FLYLINE MODELS**  
CLASSICS IN 1/4" SCALE

Its here!

The historic  
**BELLanca**  
"SKYROCKET"

3 1/2" WINGSPAN, RUBBER  
FOR PULSE AND SNAP, MULTI-  
REDO CONTROLS, 1/4" BL  
FLOWN FREE FLIGHT ON RUBBER,  
\$7.95

ALL KITTS INCLUDE: TOP QUALITY PRINTED Balsa, SCALE WHEELS,  
GEMALS AND SUPER DETAIL PLANS BY HERB CLUREY

The 1929  
**Vello Monocoupe**

14.95

WINGSPAN: 23" 1/2" WINGSPAN FOR  
RUBBER, COX OR 210 POWER. A BIT  
OF NOSTALGIA AND A DELIGHT TO BUILD

\*SEE YOUR LOCAL HOBBY DEALER\*  
Standard Distributor Discounts

FLYLINE MODELS  
10643 ASHBY PL  
FAIRFAX VA  
22030

**MAKE BALSA LOOK LIKE PLASTIC  
AND PLASTIC LOOK LIKE GLASS!!**  
with a new epoxy filler

# HOBBYPOXY WHITE UNDERCOATER

- fills fast
- doesn't shrink
- sands easily
- won't crack
- terrific adhesion
- cures quickly

send for a free copy of our new Hobby Painters booklet

**HOBBYPOXY PRODUCTS**

A Division of Pettit Paint Co.  
36 Pine Rockaway, N.J. 07866





K&B 100+

Choice of  
FUELS  
with X2C OIL



K&B 500



K&B 1000+



K&B SUPER  
SPEED

K&B's wide selection of fuels is sure to provide the proper mixture to meet your particular need—for a specific type of flying—under any given condition... it's like having a "custom made" fuel.

That K&B fuels have successfully fulfilled various specific needs is proven by their performance at Meet after Meet after Meet! They have continually helped modelers to take more first, second, and third places than any other fuel.

Sizes of cans range from Pints to Gallons. Not all fuels available in all sizes. K&B Super Speed and K&B 80/20 available in Gallons only.

Choice of 3 FUELS  
with Castor Oil

K&B 100, K&B 1000, F.A.I. 80/20



K&B 100



F.A.I. 80/20

Send for your K&B Catalog, "Matched Finish System" Handbook and Super Pox Paint Chart. Include 25¢ to cover postage and handling. Address to Dept. SR-4



**aurora hobbycrafts**

DIVISION OF AURORA CORP

12152 WOODRUFF AVENUE, DOWNEY, CALIFORNIA 90241



## GAS MODEL PRODUCTS

110 VALLEY VIEW  
SOUTHGATE, KENTUCKY 40171



### Motor Kleen

Removes varnish found on cylinder heads and crankcases, will not harm anodizing. Soak engine in Motor Kleen, Rinse using a stiff brush to remove residue. 16 oz. can \$3.49 will do many engines.



### Styro Stik

Fast drying contact sheet cement will maintain its strength for many flying seasons. Super strong, super fast, only ten minute drying time. 16 oz. container, \$2.10

### Epoxy

Kwik Set 6 Minute Epoxy. Two colors for easy mixing. Sands easier than other brands. Excellent fits with micro balloons. Will not become brittle with age. Gradual cure time. More body for less runs. Modest price \$4.95. 12 oz. net weight.

Order direct if not available. Add your local hobby shop, add \$.50 for postage and handling.

## THE COCKPIT

(Continued from page 16)

After painting the components of the box, simulate wear by either dabbing silver paint (dry brush) or using Rub-n-Buff or similar material on areas that would be subjected to wear through service. Work which is systematically performed will provide an authentic "lived-in" interior. Care should be exercised, since "overaging" comes quickly, and even quicker if this is your first attempt. It is easy to get carried away — you create realism. Subtle, yet authentic, is the keyword. For instance, on military aircraft the bucket portion of the pilot's seat shows far more wear and chipping than the back, since it is generally used as a step when the pilot climbs aboard.

Likewise, the cockpit floor on both sides of the control stick will show more bare metal than the areas directly forward or aft of it. Civilian cockpits or cabins naturally are more lavishly appointed, and generally consist of upholstered seats and carpeted floors with an overall clean appearance.

The exact scale cockpit follows everything said so far but much more stringent requirements exist, since we are duplicating everything that appears in the full-size aircraft. Photographs and/or drawings are absolutely essential. The approach to construction remains the same — for stand-off/sport scale, but is far more elaborate and exacting. Absolute scale requires the application of a great deal of ingenuity to accomplish accurately. Patience and luck help also!

Since designers of full-size aircraft don't construct a square box for insertion into a fuselage, we can't for exact scale either... or can we? Sure we can, but now we've got a few more minor hurdles to overcome. Since cockpit sides generally have a slight radius to them, we can reproduce them by building our "box" with radiused sides, or create them visually by adding card stock or thin plastic bulkheads to the flat sides of the "box." Stick a few exposed stringers on and you're in. (See Fig. 3.) This method allows the use of a flat-sided box, while achieving the desired effect.

Many of the handles, levers and switches will have to be fabricated from scratch or by modifying parts you have

**E-Z JUST**  
CONTROL HANDLES  
with preformed loops

"Standard" 3-inch size, ideal for stunt and combat ships. Quick hook-up, adjustment and sure-lock. 150 lb. min. pull test. Hot fuel-resistant plastic handle.

At All Leading Dealers.

"MINIMOUNT" TEST STANDS for engines up to 19 displacement

**PHIL-LEYS**  
BUFFALO 25, N.Y.

FINGER TIP ADJUSTMENT—NO SCREWS, NUTS, BOLTS, TOOLS NEEDED

lying around in your junk box. For example, my Mustang, pictured here, has among its cockpit parts the following: throttle quadrant (plastic tube heated with hot knife), aileron and rudder trim wheels (re-shaped hub caps from ■ old car kit), prop and mixture controls (glass-headed pins), control stick (carved balsa), park brake and flap selector (T-pins), gun sight reflector (clear plastic from old parts container), rear view mirror (headlight from old car kit), electrical harnesses (fine gauge solder, painted), oxygen line (4-40 threaded rod, bent to shape), shoulder harness (flat shoelace).

This is just a partial list to set you in the right direction, and to point out that nearly anything can be used in detailing.

Military cockpits present more problems than the average civilian one, primarily because interior structure also must be duplicated. This means exposed wiring, system lines, stringers, bulkheads, and the like. The civilian cockpit is, in most cases, our "box" system. Most structure is hidden and the cockpit is very sanitary and pristine in appearance, such as Walt Moucha's Spezio and John Roth's Volksplane—two marvelous examples of scale building.

Accurate representation of warning placards, lettering and stencils are best achieved by photostating to the size required. Extremely small lettering can be simulated by small paint dots of the proper color. Most cities have printing or photostat houses that can reduce or enlarge just about anything you need for a nominal fee.

A few of the pitfalls in cockpit building that you are likely to encounter, but should try to avoid are:

—Improperly positioned instruments, such as a tachometer where the clock should be, altimeter in place of directional gyro, and air speed indicator in place of stand-by compass. Don't sham here, ■ sharp judge will pick it up. You worked from the same documentation from which he's judging, so make it accurate.

—Unnecessary additions, which are unnecessary if you stick to your reference material. You'll have to submit it with the model anyway, so duplicate what's shown, nothing more. Telling a judge, "Well, it's not in the picture but

**KRAFT**

# KRAFT GREAT LAKES, INC.

For  
THE FINEST FACTORY  
AUTHORIZED  
REPAIR SERVICE.

**PCS**

Fair prices

Fast service

**ALL MODELS KRAFT and PCS**

**KRAFT GREAT LAKES, INC.**

6787 Wales Road P.O. Box 2482

North Canton, Ohio 44720 Phone (216) 499-8310

## PROPEL MORE with Tornado

Go further faster on same power!  
Every Grish-engineered  
TORNADO Propeller has true pitch ...  
delivers MORE of your engine's RPM

**YELLOW PROPELLERS**

2 Blade Tractor  
5.3 5.4 each  
6.3 6.4 35¢  
7.4 7.6 7.8 50¢  
8.4 8.6 8.8 65¢  
9.4 9.6 9.7 9.8  
10.4 10.6 85¢  
11.4 11.6 11.8 1.1

2 Blade Pusher  
5.3 5.4 each  
6.3 6.4 35¢  
7.4 7.6 7.8 50¢  
8.4 8.6 8.8 65¢  
9.4 9.6 9.7 9.8  
10.4 10.6 85¢  
11.4 11.6 11.8 1.1

RC 12.4  
12.5 12.6 1.50

3-BLADE  
Metallic Aluminum Color

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

8.6 8.8  
9.6 10.6  
10.4  
1.150

**GRISH BROS.**  
ST. JOHN  
INDIANA 46733

## Get close to the real thing.

Ask any race driver who's driven a Jerobee 1/12 scale, radio controlled, gas powered racing — he'll tell you it's so close to the real thing it's scary! Behind the wheel of a Jerobee, you feel the same heart-thumping suspense at the starting line, the same breath-catching excitement screaming into the turns at 200-plus scale mph! That unbelievable .049 gas engine even makes all the right sounds!

Completely assembled and ready to roll, five different models to choose from. See them at your local hobby shop, department store, or speed shop. Send for free brochure.

**Jerobee Radio Control Racing Cars**



## VINTAGE R-C PLANS



**STINSON RELIANT**

SR-5

plans \$8.95

WING SPAN 84"  
2" SCALE  
MULTI

GREAT LAKES 2T-1A 57" span \$8.95  
TAYLORCRAFT 72" span \$6.95  
(OTHERS)

SEND 50¢ FOR 74 CATALOG  
DEALERS INQUIRIES INVITED

**SID MORGAN**

13157 Ormond, Belleville, Mich. 48111

Products, Dept. A, Kirkland, Washington 98033

## ▲ POWER PANEL

**POWER** for a starter pump plug  
**AMMETER** indication of plug condition

**ALL** from a 12V battery

- Outputs: 12V, 4V, 1½V
- Glow Plug Cord
- Battery Cord
- Mating Plugs
- 3" x 5" for Easy Mounting

**ONLY \$19.95**

**SEE DEALER FIRST.** If unavailable, order direct including \$1.00 for handling. Indiana residents add 4% sales tax.



## ▲ FLITE BOX

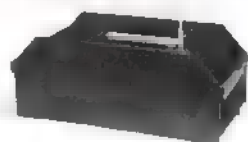
■ All plywood, dadoed ■ glued construction

■ Finished & ready to use

● Has removable plane carriers

**ALL FOR \$22.95**

● Also available in kit form with the same features for \$12.95



Send for free 1974 catalog

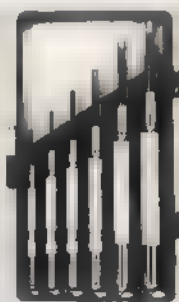
**DA Enterprises**

Box 335 Haubstadt, Indiana 47639

Manufacturers For The Aero Modeler

(812) 768-6029

# K&S FOR TOOLS



### TOOL SETS

Sets of K & S top quality tools with individual swivel handles. Ideal for home, workshop, and field.

Set of 5 Nut Drivers #422 \$3.95

Set of 5 Open-End

Wrenches #423 \$3.95

Set of 5 Phillips-Allen #424 \$3.95

Set of 6 Screwdrivers #426 \$3.50



### KWIK-CHANGE TOOL SET

Handy package of five different types of tools. These sets are the right size for the Hobbyist. Perfect for the R/C Flight Box.

Top Set #421 \$5.95

Screwdriver Set #425 \$2.50

Nut Driver Set #427 \$3.50

Open End Wrench Set #428 \$3.50

Phillips-Allen Set #429 \$3.50

**IF NOT AVAILABLE AT DEALER ORDER DIRECT SEND 25c FOR CATALOG**



**6917 Wain 59th Street, Chicago, Illinois 60648**

I've got 10,000 hours in the full-size bird, and I *know* the bomb salvo handle was on the left console! I won't get you anywhere. Document it or forget it.

-Sanitary cockpits, in military aircraft. I've seen scale ships where the exteriors were beautifully executed with exhaust burns, oil stains, faded paint, all done very convincingly. But the cockpit looked as though it had never been stepped in, worked on, or approached by anyone or thing. In service, these aircraft take a good deal of abuse, in and out. If you're modeling a factory-fresh bird, okay, clean it is. An operational machine *looks* worn. Just remember, carry the aging process throughout. The seat bottom is nearly always chipped by pilots or mechanics standing on it. The stick is chipped too. Paint fades; simulate it!

I usually finish my cockpit interiors with Pactra Military Flats. I find them easy to work with, reasonably quick drying and very brushable. The range of colors is excellent, and tints can be mixed to the proper shades, as required. Of invaluable aid in painting will be the use of a quality airbrush. The Binks "B" or Thayer-Chandler are ideal. They'll cost from \$25.00 to \$40.00, but will be worth every cent to the serious scale modeler. (Justify the purchase to your wife by telling her that now you can touch-up all your scratched furniture and chips in her car. Make an honest effort and, when the paint doesn't

NEW...TEMPERATURE COMPENSATED

# NYROD

## A ROD FOR ALL SEASONS

NEW 8" METAL ROD IS PERFECT FOR THESE INSTALLATIONS - BEND AS NECESSARY

NYROD inner tubing

NYROD outer tubing

NEW! 1/4" METAL ROD

SU-PR-KLEVIS

REGISTERED U.S. PAT. & TM. OFF. 60544





# INTRODUCING THE **CORSAIR A7** STAND-OFF SCALE

## KIT INCLUDES:

Fiberglass Fuse Sheeted Foam Wing  
Tandem Recoil Nose Gear  
Wheels  
Spinner  
Nylon Acc. Package



CORSAIR A7 \$89.95

## SPECIFICATIONS

|           |        |
|-----------|--------|
| Wing Area | 572"   |
| Span      | 50"    |
| Length    | 51"    |
| Weight    | 7 lbs. |
| Engine    | 60     |

YOU DON'T HAVE TO BE AN EXPERT FOR THIS ONE.  
THIS PLANE FLIES ■ LANDS LIKE ANY PATTERN SHIP.  
YOU WILL HAVE TO TRY IT TO BELIEVE IT!

Ohio orders include 4% Sales Tax

# J&J Model Products

3913 CARLTON AVENUE  
COLUMBUS, OHIO 43227

match, she'll have the furniture and car refinished. She's happy, you have your airbrush and she won't ask you to touch-up anything again.)

In summary, the basic ingredients you need to do accurate cockpit modeling are: (1) As much reference material as you can collect; (2) Scrap materials, balsa, card stock, plastic, wire, leftover kits; (3) A good range of paint materials; (4) Perseverance and desire to produce a scale cockpit using a minimum of purchased materials and a maximum of your ingenuity.

I have highlighted here some of the basic methods for getting the job done. You will find, however, that once you start, things start happening. Pieces fit, ideas come to mind and Voila!... you have your cockpit.

Bear in mind that there are no secrets or magic involved. It is not ■ complex as it appears and well within the capabilities of any modeler. If I can be of any help with projects you might be considering or in which you are already involved, drop me a line.

## AERO SPORT

(Continued from page 30)



of Silver Trim MonoKote. (This was my first experience with this material and it went reasonably well). On the fuselage, the four rear deck panels were covered individually, and I had some difficulty in covering the compound curves around the nose. To accomplish this, ■ number of small overlapping pieces were heated and stretched, while ironing into place. The edges of the MonoKote in the engine compartment were epoxy coated and sprayed with red dope.

The landing gear and pushrod entrances were sealed with R.T.V. Silicone rubber sealant, an excellent material to keep the castor oil outside the plane.

My original ship has been a lot of fun, both building and flying. I'm sure you will have equal enjoyment with your project.

# Get it all together!

Handsome binder of deep maroon vinyl with yellow-gold AAM logo on front and spine. Each holds one year's worth of issues. \$4.25 each or three for \$12.

POTOMAC AVIATION PUBLICATIONS, INC.  
733 15TH ST., N.W., WASHINGTON, D.C. ■■■■



## For only \$2.75 you can have your own copy of the '74 RC Products Directory.

Please send me \_\_\_\_\_ copy (copies) of the 1974 RC PRODUCTS  
DIRECTORY. Enclosed is my check/money order in the amount of \$ \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE/ZIP \_\_\_\_\_

MAIL TO: POTOMAC AVIATION PUBLICATIONS, INC.  
733 15TH ST., N.W., WASHINGTON, D.C. 20005

Available at local hobby stores. Price includes FREE mid-year Trade Show supplement.

# AAM Sudden Service Plans

**FULL-SIZE PLANS—SHIPPED  
FIRST CLASS MAIL WITHIN 48  
HOURS—NO EXTRA CHARGE!**

## RC PATTERN

**0541/FAKIR I**—Pattern ship. Winner of AAM's Super Design Contest. Plane has received accolades for its clean lines and striking looks. Well-engineered plan set includes hints on construction and installations. 60 engine. Four- to five-function radio. \$6.00

**0141/SHRIKE**—Fabulous RC Pattern ship designed by pylon champ Violett is very smooth, fast flyer. Design is intended for fiberglass fuse, foam wing, retracts and a hot 60. \$4.50

**0643/NOVI ARROW**—FAI Pattern ship. Designed by John Brink, twice winner of the South African Nats, and noted Internats competitor. Large 70" elliptical winged model emphasizes light wing loading for smooth maneuvers. Large plan sheet is highly detailed. For retracts and 60 engine. \$6.00

**0531/FRIEND SHIP I**—Streamlined RC Pattern ship for 60s, retracts. Uses foam wing and fairly simple balsa fuse construction. \$4.75

**0331/CAJUN QUEEN**—Frequent winner in RC Pattern down South is Lou Penrod's graceful design. Takes 60's and retracts. \$3.75

**1031/WARLORD**—This great RC ship was designed to win in FAI competition. With a 61 the Warlord becomes a highly competitive plane. \$4.25

**0932/PISCES**—RC Pattern ship by Dave Hale for AMA-FAI patterns. For side-mounted 60 engine and retracts. Ship has 710 sq. in. area and clean lines. \$4.25

**0701/SUDS**—Nimble RC for sport or competition. One-piece construction, 40 to 60 engines. Build fast from standard balsa sizes. By Joe Dolan. \$4.25

**0702/CONTENDER**—Military-like RC, also Sport/Stunt type for 35-60. Tri-gear, removable no-dihedral wing. Fast building. By Dave Platt. \$4.25

**Special Offer: Get both Suds and Contender plans for only \$7.00**

**0224/CARDINAL**—Excellent FAI European-type RC pattern plane of foam/balsa construction. Up-to-date ship is for 60's, suitable for retracts. \$4.50

**0745/TERN**—RC Soarer. Twelve-foot wingspan with fiberglass fuselage. Full-span flaperons optimize thermal performance. Coupled ailerons and rudder for tight turning radius. Uses three-function radio, with four servos. Full-size plans (2 sheets) show construction of many useful gadgets. \$9.95

**0746/SUNDOWNER (F-4B PHANTOM)**—Ducted fan stand-off scale and pattern ship. This practical ducted design uses the commercially available J.J. Scozzi "Turb-Ax I" unit. Standard balsa fuse and foam wing construction techniques. Anhedral stab and polyhedral wing capture the rakish lines of this popular design. Plane is totally capable of contest calibre maneuvers. Hot rear rotor 40 engine. \$5.50

## GO FAST

**0442/MISSY DARA**—QM with high scale fidelity. Integral wing/fuse construction uses foam cores. Either front or rear motor 15 engine. \$3.00

**0743/PHONY FOLKERTS RETRACTS**—Plans show complete details for installing fully enclosed retracts on not only an FAI racer, but on any model. All details profusely illustrated. Setup requires 180° retract servo. \$2.00

**0744/PHONY FOLKERTS**—FAI Pylon Racer. This speedster resembles its 1937 prototype from only a great distance, but its looks are more in line with contemporary styles. Plans include four landing gear configurations, including fully enclosed retracts. Foam wing cores and fiberglass fuselage commercially available. \$5.50

**1223/QUICKY 500**—Glen Spickler's club pylon racer goes fast but is very quick-building, long-lasting, easy to fly and land. For TR type 40s. Great for grass-field sites. \$2.75

**0831/OLE TIGER**—Sleek Quarter Midget racer uses fiberglass arrow shafts ■ spars for simple wing construction. Built-up fuselage. Complies with all QM racing rules, by Don Panek. \$3.75

**0812/HOT CANARY**—Unique Formula II/FAI racing biplane by Bob Sigelkoff. Although unusual-looking, it is fast and quickly built. \$3.25

**0841/ASTRO JEFF**—RC Glider. Winner of the 1973 SOAR Nats, this 14' soarer has built-up wings, with spoilers. Three extra large plan sheets (almost 45 sq. ft.) illustrate profuse construction details. Either a fiberglass or balsa fuse can be built. Three function radio. Our best sailplane design. For balsa fuse version, order 0841A—\$16.95. For fiberglass fuse version, order 0841B—\$13.95.

## Seaplane Special

**0641/OSKER**—RC flying boat. Either built-up or foam 56" span wing. Radio is sealed in unusual waterproof compartment that is integral part of wing/cabin assembly. Fuselage is basic box structure, with no tricky keel construction. 35-45 power. Four-function radio. 60-powered version available—see below. \$5.00

**0642/OSKER + 10%**—Same features as regular Osker, but for 60 engines. \$5.50

**0833/SPECTRA**—Semi-scale RC version of an amphibian with engine mounted on a pod in tail. Plane has T-tail stabilizer, wing tip floats, 48" span for 23 to 40 engines and four-channel radio. \$4.00

**0641 and 0833—Now \$7.95**

**0642 and 0833—Now \$8.75**

## Our Best Helicopter

**0825/S.S.P. RC HELICOPTER**—Gene Rock's very successful large trainer helicopter needs only 40 to 45 size engine. Designed for home builder with minimum machined parts, gyro-stabilized tail rotor, all belt drive, 4-channel radio. \$6.00. Also recommended is Plan No. 0826 with full-size drawings for all special machined parts. \$2.00

**BOTH PLANS—\$6.95**

## Control Line Package

**0231/MUSTUNT I**—Primary profile fuselage, upright 35 engine, thick airfoil stunt trainer. By Al Rabe. \$2.25

**0232/MUSTUNT II**—Advanced stunt trainer, same aerodynamics as Mustunt I but fully shaped fuselage and upright 35 engine capable of winning any meet. \$2.75

**0233/MUSTUNT III**—NATS-level 35-powered non-scale competition CL stunter is exactly like Mustunt II but has many detail refinements and tapered wing. \$1.00. You'll need 0232 for complete construction details, order separately.

**ALL THREE PLANS—\$4.95**

## CL Fun

**0542/MONSTERS ■ MONOPLANES**—Successors to Bipes 'N Tripes (Plan No. 0342). The monsters are twin engine biplanes. Plan shows German and British monsters and monoplanes—four different planes altogether. 49-powered CL. Free Tenderfoot decals included. Special Tenderfoot price. \$1.00

**0342/BIPES 'N TRIPES**—Snappy stunting 049-powered biplanes and triplanes can be built in three styles. Ships are quickly-built and ■ great for WWI Combat. Tenderfoot plan special. \$1.00

**BOTH PLANS—\$1.75**

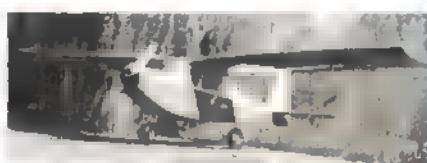
## THIS MONTH'S PLANS



**0941/LEPERE L.U.S.A.C.-11**—Scale WWI biplane. Large size (1580" sq. wing area) exact scale model can ■ built with military or civilian trimming. Fully enclosed engine (60-71 size) in an uniquely molded metal cowl. Model corresponds to a full length AAM article on the full-size plane. Four-function radios. Two large plan sheets. \$10.00



**0944/YANKEE**—RC Pattern. Emphasizing soundness, honesty and smoothness, the Yankee is designed for functional flying. No gimmicks or tricks, this is ■ pattern ship that will give consistent performance. Foam wing and stab, with balsa fuse, FAI-style lines. Retracts and side-mounted engine. Large, well-detailed plan sheet. \$5.25



**0942/AEROSPORT**—RC Trainer ■d Fun Flyer. Ruggedly constructed, large (62" span) and easy to fly, this model makes ■ excellent first or second ship. Semi-symmetrical wing keeps zooming and stalling tendencies to ■ minimum, while enabling basic aerobatics. 45-60 engine and four-function radio. \$5.25



**0943/MAX-FLY**—RC Sailplane. Fourteen feet of wing on either a balsa or fiberglass fuselage. Designed for maximum contest efficiency. Full-flying stab and torque rod spoiler linkage make for a simple radio installation. Second place sailplane at the '74 WRAMS Show. Three-function radio. \$6.00



**0823/APTERYX**—New style mylar-over-foam wing — fast, tough, AMA Combat plane by Robert Meilen. Construction offers perfect airfoil and tapered wing. **\$2.25**

**0822/NEMESIS II**—Howard Rush's winning AMA Combat ship. Ultra-light, balsa and silk, very quick. \$2.25

ALL SPECIAL PRICES  
GOOD ONLY DURING  
MONTH ADVERTISED

**0143/METEOR MKS**—CL Scale model uses unique ducted fans (2) and 40 size engines. Text and plans explain fan construction. Large ship has 58" wingspan, 66-in. length and weighs 12-13 lb. **\$6.00**

**0341/SUNDAY FIGHTERS**—Small, responsive biplane is quick to build with Ace foam cores. Two versions are shown on plans. Ken Willard design. For 10 engines. **\$2.50**

**0441/FLEXI-FLIER**—Scale version of an RC rogallo hang glider uses a GI Joe doll as a control surface. A highly unusual slope soarer. It can also be used on tow. Uses two standard servos. \$1.75

**0301/WINNIE MAE**—Spectacular RC Vega for strong 60 engine in 2"=1' scale, foam and balsa, lots of details. By Monty Groves. Two big sheets. **\$4.50**

Also, special 1½"=1' version for F&I scale, 40 thru 60's. Two sheets. Order ■ No. 0802. \$4.25

**0911/FLETCHER**—McCullough's magnificent tri-geared, low-wing crop duster scale job for 60's. Generous area and moments. All balsa. Highly-detailed plans on 11 sheets. \$7.50

**0712/BONANZA/DEBONAIR**—Build either V-tail or conventional version of this popular fast light plane for full-house radio and a strong 60. Fine-flying ships, foam wing construction. **\$5.00**

**1022/LOCKHEED S1**—Unique highly-detailed scale biplane of Lockheed's first airplanes. Original dates to 1921. Design by M. Groves, uses a 40. Two sheets. \$7.00

**0431/SIRIUS**—Foam and fiberglass RC scale beauty ■ ■ fine flying low wing, early Lockheed plane model by Bud Phillips. \$5.50

**0242/PAZMANY PL-1**—A great scale subject from Nick Ziotti. Formerly a military trainer, it features all-moving stab and all-balsa construction. Uses 45 engines. Two plan sheets. **\$6.00**

Volume one: RC's most basic manual on everything from escapements to digital radios. Glossary, circuits, interference, batteries, etc. \$1.25.

Volume two: Complete description of U-control from flying categories, to events, planes, control systems, engine, fuel systems, and more. \$1.25.

**By George Sposs**  
Volume three: Broad coverage of RC car design, radios, engine operation, tips for performance. How to drive, tune, race. Inci, racing rules. \$1.25.

**By Richard Palmer**  
Volume four: How to operate your store for real profit. Tips on personnel, store location, showcases, advertising, promotions, floor plans, inventory, control, taxes, etc. \$2.00.

By Eric Meyers, Products Editor for American Aircraft Modeler, Sport Modeler and Model Dealer magazines. The Directory contains over 1000 listings of radio control products in 25 major categories. Each listing includes full description of item, photograph, and price. It is your buying guide for 1974. \$2.75.

Handsome binder of deep maroon vinyl with AAM logo on end and cover. Very durable and easy to use. Holds full year of copies. \$3.95 each or three for \$11.00.

The plans from the past six years of AAM are still available even though not shown on monthly listing. Catalog lists each plan by name, author, engine size, event, category, and price. Updated regularly, \$.25.

**Mail to: Potomac Aviation Publications**

733 15th Street, N.W., Washington, D.C. 20005

| PLAN NO. | COST |
|----------|------|
|----------|------|

[illegible]

|   |        |
|---|--------|
| <input type="checkbox"/> 1974 RC PRODUCTS DIRECTORY               | \$2.75 |
| <input type="checkbox"/> GETTING STARTED IN RADIO CONTROL         | 1.25   |
| <input type="checkbox"/> GETTING STARTED ■ CAR RACING             | 1.25   |
| <input type="checkbox"/> GETTING STARTED IN CONTROL LINE          | 1.25   |
| <input checked="" type="checkbox"/> RETAIL HOBBY STORE MANAGEMENT | 2.00   |
| <input type="checkbox"/> BINDERS FOR AAM (each)                   | 3.95   |
| <input type="checkbox"/> 3 Binders for                            | 11.00  |
| <input type="checkbox"/> PLANS SERVICE CATALOG                    | .25    |

**Immediate Shipment**NAME \_\_\_\_\_  
Please Print

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_

Rates quoted above pertain to the USA, Canada, APO's, and FPO's. For foreign orders please add 25% postage.





# TOWER

P.O. BOX 778

CHAMPAIGN,

## RC POWER KITS . . .

|                    | RETAIL  | TOWER   |
|--------------------|---------|---------|
| <b>AIRTRONICS:</b> |         |         |
| Aero Star          | \$79.95 | \$64.75 |
| <b>ANDREWS:</b>    |         |         |
| Minimaster         | \$32.95 | \$24.75 |
| H-Ray              | 26.95   | 20.25   |
| A-Ray              | 32.95   | 24.75   |

|                    |         |         |
|--------------------|---------|---------|
| <b>ASSOCIATES:</b> |         |         |
| Tiger Tail         | \$67.50 | \$55.00 |
| Nutcracker         | 67.50   | 55.00   |
| Banshee            | 67.50   | 55.00   |
| Hi-Lo              | 67.50   | 55.00   |
| Cosmic Wind        | 67.50   | 55.00   |
| Troublemaker       | 67.50   | 55.00   |
| Phoenix 6          | 67.50   | 55.00   |

|                   |         |         |
|-------------------|---------|---------|
| <b>BRIDI:</b>     |         |         |
| RCM Sportster     | \$34.95 | \$26.75 |
| RCM Basic Trainer | 29.95   | 21.95   |
| RCM Trainer       | 49.95   | 38.25   |
| RCM Trainer 40    | 42.95   | 32.25   |
| Super Kaos        | 59.95   | 44.50   |
| Kaos              | 52.95   | 41.00   |
| Super Kaos 40     | 44.95   | 33.75   |

|                   |         |         |
|-------------------|---------|---------|
| <b>BUD NOSEN:</b> |         |         |
| Asornce Champ     | \$99.95 | \$87.50 |

|                  |         |         |
|------------------|---------|---------|
| <b>GOLDBERG:</b> |         |         |
| Senior Falcon    | \$46.95 | \$33.50 |
| Skylark B2       |         |         |
| Skylark B6       | 28.95   | 21.25   |
| Falcon           |         | 17.95   |
| Shoestring 54    | 38.95   | 28.50   |
| Junior Skylark   | 10.95   | 8.95    |
| Junior Falcon    | 9.95    | 8.15    |

(all wing kits in stock)

|                    |         |         |
|--------------------|---------|---------|
| <b>DAVE PLATT:</b> |         |         |
| Spitfire           | \$59.95 | \$48.95 |
| T-28-B             | 64.95   | 50.95   |

|                 |       |       |
|-----------------|-------|-------|
| <b>GEE BEE:</b> |       |       |
| Islander        | 44.95 | 36.95 |
| Mallard         | 44.95 | 36.95 |
| MK IV Float     | 19.95 | 16.50 |

|                |         |         |
|----------------|---------|---------|
| <b>JENSEN:</b> |         |         |
| Ugly Stick     | \$55.00 | \$44.00 |

|                    |       |         |
|--------------------|-------|---------|
| <b>J &amp; J:</b>  |       |         |
| Troublemaker       |       | \$42.00 |
| Eyeball            | 54.95 | 38.00   |
| Banshee            | 54.95 | 38.00   |
| J-Craft            | 45.95 | 32.00   |
| 1/4 Midget Mustang | 34.95 | 25.00   |
| J-Bipe             | 59.95 | 42.00   |

|                |         |         |
|----------------|---------|---------|
| <b>KRAFT:</b>  |         |         |
| Wing Master    | \$29.95 | \$23.95 |
| Wingmaster Jr. | 27.95   | 21.95   |

|                |         |         |
|----------------|---------|---------|
| <b>LANIER:</b> |         |         |
| Sprint 25      | \$45.95 | \$34.50 |
| P-51 Mustang   | 52.95   | 38.75   |
| Caprice        | 59.95   | 44.95   |
| Apache         | 52.95   | 39.75   |
| Hawk           | 32.95   | 24.75   |
| Cesna          | 42.95   | 32.25   |
| Transit        | 39.95   | 29.95   |
| Jester         | 59.95   | 44.95   |
| Comet II       | 51.95   | 38.95   |
| Slo Comet      | 51.95   | 38.95   |
| Pinto          | 44.95   | 33.75   |
| Midget         | 52.95   | 39.75   |
| Invader        |         | 47.25   |
| Dart           | 52.95   | 39.75   |

(All Lanier are almost ready to fly)

|                                  |         |         |
|----------------------------------|---------|---------|
| <b>LONG ISLAND HOBBY CRAFTS:</b> |         |         |
| Focke-Wulf 190                   | \$55.00 | \$39.95 |
| Grumman F8F Bearcat              | 55.00   | 39.95   |
| P-47 Thunderbolt                 | 55.00   | 39.95   |
| PT-17                            | 65.00   | 47.25   |

## ALMOST READY TO FLY . . . the FB 100

from AIR CAPITAL MODELS

### INCLUDES:

All controls and pushrods attached, fuel tank and fuel line, landing gear and wheels, spinner, white enamel finish already trimmed. Just add engine and radio!



ONLY \$87.50 NOTE: NO C.O.D.'s ON THIS PLANE. Span 60" Engine .35 to .61

### DAVE PLATT

all new T-28B



Span 65" Engine .60  
RETAIL \$64.95 TOWER \$50.95

### RC KITS

THE SUPER HUNTER II



Span 64" Engine .60  
Retail \$54.95 Tower \$46.75

all new from MACO  
the "Simplex Trainer"



Span 49" Engine .29 to .45  
RETAIL \$34.95 TOWER \$24.50

RC KITS  
THE U-2 SPY PLANE



Span 70" Engine .45 to .60  
RETAIL \$49.95 TOWER \$42.50

## HOBIE MODEL COMPANY

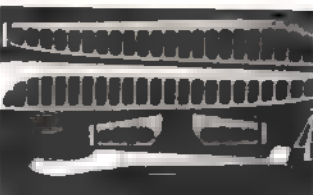
all HOBIE HAWK

Span 99" Area 590 sq. in.



Available in ready to cover  
form for only \$89.00  
-OR-

Available ready to fly already  
monokoted and painted. Comes in  
choice of orange, white, yellow.  
Only \$129.00.



## NEW FROM WOLFF-PAK

THE TOAD

Exceptional Quality  
4 Channel Trainers.

Span: 50"  
Area: 530 sq. in.  
Engine: .40



RETAIL \$39.95  
TOWER \$32.50

THE TADPOLE

Span: 36"  
Area: 288 sq. in.  
Engine: .15

RETAIL \$29.95  
TOWER \$24.50

### MACO:

|                   |         |         |
|-------------------|---------|---------|
| "Simplex" Trainer | \$34.95 | \$24.50 |
| Jat Star          | 57.95   | 37.75   |
| Vega              | 55.95   | 36.50   |

### MARK'S MODELS:

|            |         |         |
|------------|---------|---------|
| Bushwacker | \$44.95 | \$36.95 |
|------------|---------|---------|

### MODEL DYNAMICS:

|           |         |         |
|-----------|---------|---------|
| Gryphon   | \$34.95 | \$28.50 |
| Shriek    | 55.00   | 44.75   |
| Power Pod | 6.50    | 5.75    |

### MIDWEST:

|                 |         |         |
|-----------------|---------|---------|
| Strikemaster    | \$42.95 | \$31.95 |
| Cardinal Squire | 54.95   | 37.95   |
| Mech 1          | 54.95   | 37.95   |
| Chipmunk        | 24.95   | 18.00   |
| Cardinal        | 24.95   | 18.00   |
| Little Stick    | 25.95   | 18.75   |
| Sweet Stick     | 37.95   | 27.25   |
| Tri Squire      | 19.95   | 14.50   |
| Lil Tr Squire   | 14.95   | 11.00   |
| Lil "T" Glider  | 19.95   | 14.50   |

### RC KITS:

|                   |       |       |
|-------------------|-------|-------|
| F-8-F "Bearcat"   | 29.95 | 25.50 |
| The U-2           | 49.95 | 42.50 |
| Acro-Trainer      | 44.95 | 38.25 |
| Super Hunter - II | 64.95 | 46.75 |
| Hawker Hunter     | 49.95 | 42.50 |

### ROYAL PRODUCTS:

|                     |         |  |
|---------------------|---------|--|
| Cessna 208          | \$69.95 |  |
| Focke-Wulf 190      | 74.95   |  |
| Corair              | 79.95   |  |
| Phantom F4J         | 69.95   |  |
| Cessna 182          | 69.95   |  |
| Cessna 182 Jr.      | 42.95   |  |
| B-25 (Twin)         | 84.95   |  |
| P-38 (Twin)         | 89.95   |  |
| Spirit of St. Louis |         |  |
| Pitts Special       | 74.95   |  |
| Hein Junior (Tony)  | 89.95   |  |
| Hein Junior (Tony)  | 39.95   |  |
| Hayabusa (Oscar)    | 69.95   |  |
| Cessna 310 Q (Twin) | 84.95   |  |
| Zero                | 74.95   |  |
| Zero Junior         |         |  |
| Spitfire            | 74.95   |  |
| Spitfire Junior     | 44.95   |  |
| Aquarius            |         |  |
| Super Cherry II     | 99.95   |  |
| Piper Colt Sr.      | 74.95   |  |
| Piper Colt Jr.      | 44.95   |  |
| Bleriot III         | 49.95   |  |
| Cessna Skymaster    | 84.95   |  |
| F8F Bearcat         | 84.95   |  |

### SOUTHERN RC:

|                     |       |         |
|---------------------|-------|---------|
| Mustang-X (NEW!)    |       | \$49.95 |
| Tigertail Standard  | 69.95 | 58.00   |
| Tigertail Deluxe    | 99.50 | 83.00   |
| Sweetwater Standard | 69.95 | 58.00   |
| Sweetwater Deluxe   | 89.50 | 83.00   |
| Bobcat              | 52.95 | 44.00   |

### TIDEWATER:

|              |         |         |
|--------------|---------|---------|
| Pronto       | \$21.95 | \$16.00 |
| Super Pronto | 27.95   | 23.25   |

### TOP FLITE:

|                |         |         |
|----------------|---------|---------|
| P-51 Mustang   | \$52.50 | \$35.50 |
| P-40 Warhawk   | 54.95   | 37.50   |
| P-39 Airacobra | 54.95   | 37.50   |
| Kwik Fly III   | 54.95   | 37.50   |
| Contender      | 42.95   | 29.00   |
| R/C Nobler     | 34.95   | 24.00   |
| S.E. III       | 54.95   | 37.50   |
| Headmaster     | 19.95   | 13.95   |

### VK:

|                 |         |         |
|-----------------|---------|---------|
| Cherokee        | \$43.95 | \$29.95 |
| Navajo          | 42.95   | 29.25   |
| Cherokee Babe   | 28.95   | 20.50   |
| Super Corbin    | 34.95   | 24.00   |
| Fokker Triplane | 49.95   | 33.75   |
| Nieuport 17     | 48.95   | 33.40   |

\*Call, write, or consult catalog for  
discount price on these Royal Kits.

# HOBBIES

ILLINOIS 61820

PHONE  
TOLL FREE

800-637-6050

ILLINOIS RESIDENTS  
CALL COLLECT 217-356-4294

|           |         |         |
|-----------|---------|---------|
| WOLFF-PAK |         |         |
| Toad      | \$39.95 | \$32.50 |
| Tadpole   | 29.95   | 24.50   |

## RC ENGINES . . .

| COX:            | RETAIL  | TOWER   |
|-----------------|---------|---------|
| Tee Dee .010    | \$16.00 | \$12.15 |
| Tee Dee .049    | 16.25   | 12.35   |
| Tee Dee .09     | 16.50   | 14.05   |
| Medallion .15   | 21.00   | 15.95   |
| Medallion .09   | 16.25   | 12.35   |
| Medallion .049  | 13.50   | 10.25   |
| Golden Bee .049 | 10.00   | 7.80    |
| Babe Bee .049   | 8.00    | 6.10    |

| ENYA:             | RETAIL  | TOWER   |
|-------------------|---------|---------|
| HI TV             | \$22.50 | \$17.75 |
| .15 HI TV         | 25.25   | 19.95   |
| .19 V TV          | 27.50   | 21.40   |
| .29 IV TV         | 30.98   | 23.90   |
| .35 III TV        |         | 25.60   |
| .40 TV            | 62.98   | 47.75   |
| BB TV             | 56.25   | 41.35   |
| .80 III BB TV     | 83.50   | 58.00   |
| .60 III BB TV G-8 | 68.50   | 55.00   |

| FOX:         | RETAIL  | TOWER   |
|--------------|---------|---------|
| .15 RC       | \$20.95 | \$15.50 |
| .19 RC       | 25.95   | 19.00   |
| .25 RC       | 25.95   | 19.00   |
| .29 RC       | 29.95   | 21.25   |
| .36 RC       | 29.95   | 21.25   |
| .60 RC Eagle | 68.95   | 47.25   |
| .78 RC       | 84.95   | 56.50   |

| H.B.:            | RETAIL   | TOWER   |
|------------------|----------|---------|
| .81 RC w/muffler | \$130.00 | \$80.00 |
| RC Stallion      | 23.50    | 17.75   |
| .40 RC w/Parry   | 45.00    | 32.00   |
| .40 RC Schnurle  | 82.00    | 57.50   |

| O.S. MAX:        | RETAIL   | TOWER   |
|------------------|----------|---------|
| Pat .099 RC      | \$ 13.98 | \$11.75 |
| .10 RC           | 19.98    | 16.95   |
| .15 RC           | 25.98    | 20.95   |
| .20 RC           | 27.98    |         |
| .25 RC           | 29.98    | 24.25   |
| .30 RC           | 32.98    | 26.50   |
| .30 RC Wankel    | 87.50    | 75.00   |
| .35 RC           | 32.98    | 26.50   |
| .40 RC           | 49.95    | 39.95   |
| .50 RC           | 59.95    | 43.95   |
| .60 RC Goldhead  | 74.95    | 61.00   |
| .80 RC           | 105.95   | 86.50   |
| .60 RC Blackhead | 74.95    | 61.00   |

| SUPERTIGRE:       | RETAIL  | TOWER   |
|-------------------|---------|---------|
| G 20/23 RC        | \$33.95 | \$28.00 |
| G 21/46 RC        | 39.95   | 32.95   |
| ST .60 RC         | 59.95   |         |
| G .60 RC Bluehead | 74.95   | 61.00   |
| G .71 FI RC       | 79.95   | 64.95   |

| VECO:           | RETAIL  | TOWER   |
|-----------------|---------|---------|
| 19 RC           | \$38.00 | \$27.75 |
| 61 RC w/muffler | 85.00   | 60.50   |

| WEBRA:               | RETAIL   | TOWER   |
|----------------------|----------|---------|
| .40 RC Blackhead     | \$101.00 | \$64.50 |
| .61 RC Blackhead     | 134.00   | 84.00   |
| .61 RC Schnurle      | 148.00   | 95.40   |
| .81 RC Schnurle R.V. | 157.00   | 102.20  |

| YS:   | RETAIL   | TOWER   |
|-------|----------|---------|
| YS RC | \$146.00 | \$94.00 |

NOTE: ENYA AND WEBRA PARTS IN STOCK!

## LONG ISLAND HOBBYCRAFTS

### the PT-17



Span: 51" Engine .40 to .50  
RETAIL \$65.00 TOWER \$47.25

This excellent kit can be built 3 ways: the Army PT-17, The Navy Trainer N2S-3, or as Sammy Mason's famous stunter "Checkers". Everything is furnished including decals for all 3 versions and dummy engine cylinders.

### ANDREWS A-RAY LIMITED QUANTITY!



Span 55" Engine .19 to .40  
RETAIL \$32.95 TOWER \$24.75

### MARK'S MODELS BUSHWACKER



Span 69" Engine .15 to .20  
RETAIL \$44.95 TOWER \$35.95

## LONG ISLAND HOBBYCRAFTS

### FOCKE-WOLF 190



Span: 52" Engine .40 to .60  
RETAIL \$55.00 TOWER \$39.95

### GRUMMAN F8F BEARCAT



Span: 52" Engine .40 to .60  
RETAIL \$55.00 TOWER \$39.95

All prices in this ad are correct as of May 20, 1974.

To determine current availability and price of anything in this ad or in our catalog just call our toll free numbers listed below!

### RC KITS ACRO-TRAINER



Span 68" Engine .40 to .60  
RETAIL \$44.95 TOWER \$38.25

### TOLL FREE



### COD PHONE ORDERS

CALL TOLL FREE 800-637-6050

ILLINOIS RESIDENTS CALL COLLECT 217-356-4294

### FOR IMMEDIATE COD SHIPMENT

WEEKDAYS 9:00 A.M. to 10:00 P.M.

SATURDAYS 10:00 A.M. to 5:00 P.M.

SUNDAYS 12:00 Noon to 5:00 P.M.

### HOW TO ORDER BY MAIL

Add \$1.00 to each order for Full Insurance, Postage, and Handling. Money Order or Check only (Personal checks may be delayed to allow for clearance). Foreign Orders add \$10.00 (Excess will be refunded). Satisfaction always guaranteed.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE

## RC GLIDERS . . .

| AFI (ASTROFLITE): | RETAIL  | TOWER   |
|-------------------|---------|---------|
| ASW-15            | \$44.95 | \$33.75 |
| ASW-17            | 89.95   | 53.00   |
| Monterey          | 34.95   | 29.00   |
| Fournier RF4      | 34.95   | 29.00   |
| Malibu            |         | 22.00   |

## AIRTRONICS:

|               |         |         |
|---------------|---------|---------|
| Olympic       | \$49.95 | \$40.95 |
| Grand Esprit  | 129.95  | 102.50  |
| Questor       | 34.95   | 28.75   |
| Super Questor | 38.95   | 32.75   |

## GRAUPNER:

|         |         |         |
|---------|---------|---------|
| Cirrus  | \$84.95 | \$51.00 |
| Cumulus | 169.95  | 120.00  |

## JP MODELS:

|         |         |         |
|---------|---------|---------|
| Dart    | \$55.00 | \$47.00 |
| Dart II | 64.50   | 55.00   |
| Javelin | 49.50   | 42.00   |

## MARK'S MODELS:

|                  |         |         |
|------------------|---------|---------|
| Windward         | \$29.95 | \$22.95 |
| Wind Free        | 39.95   | 28.95   |
| Wind Free R.T.C. | 89.95   | 77.50   |

## OTHER R/C PRODUCTS . . .

In addition to all of the items listed and shown in this ad, TOWER HOBBIES carries all of the following lines: Austin Craft, DuBro, Goldberg, Robert, Rocket City, Sonic-Tronics, Su-Pro-Line, and Tatone ACCESSORIES; Ambroid, Devcon, Hobby Pox, Southern RC, and Titebond ADHESIVES; Tower Hobbies Balsa Wood; Eveready and Tatone BATTERIES; A-Juro-Jig, Dremel, X-Acto BUILDING EQUIPMENT; Perry CARBURETORS; Coverite, Royal Silk, and Southern COVERING MATERIALS; Kavan and Sonic-Tronics ELECTRIC STARTERS; K & FUEL; Sullivan FUEL TANKS; Fox and K B GLOW PLUGS; DuBro, Hagi, Kalt, Kavan, Helicopters Inc, and Graupner HELICOPTERS; Complete selection of MUFFLERS; Aero Gloss, Hobby Pox, and B SuperPox PAINTS; Badger PAINT SPRAYERS; Top Flite and Tornado PROPELLERS; EK, Kraft, MRC, and Tower Hobbies RADIOS; Goldberg, Rom Air, and Sonic Systems RETRACT SYSTEMS; Tower Hobbies RUBBER BANDS; JP SCALE INSTRUMENTS; Williams Bros. SCALE PILOTS; Midwest, Tatone, Tower Hobbies, and Williams Bros. SPINNERS; DuBro Goldberg, and Universal WHEELS.

All in SUMMER '74 fully illustrated catalog - at the lowest prices, of course!

## JUST RELEASED SUMMER '74 CATALOG

The Summer '74 catalog is an updated version of the Spring '74 catalog. Over 75 manufacturers of kits, radios, engines, and accessories at the lowest prices anywhere! Send 75c (mailed 3rd class). For first mailing, send \$1.00. FREE WITH ANY SIZE ORDER.

## FULLY ILLUSTRATED!





# Precision Cuts- Easy... with an X-ACTO Mitre Box Set



Craftsmen and knowledgeable do-it-yourselfers need a special tool for making razor-thin hairline cuts in materials that do not take comfortably a saw-tooth edge. With the X-ACTO Razor Saw Set, you can trim, notch, cross-cut and channel tough-to-cut materials like soft metals, styrene, ply and laminate without chipping, leaving burred surfaces.

## X-ACTO

48-31 VAN DAM ST.,  
LONG ISLAND CITY, N.Y. 11101

## GETTING STARTED IN R/C

(Continued from page 32)

wire very carefully where it is attached to the plug. Frequency mechanical movement fatigues the strands of wire. If there is sleeving over the wire, pull it back to expose the connection. Look for loose connections, frayed or broken wire strands. Gently tug on the wire to verify integrity. Particularly after a crash, these connections, as well as the full length of the wire, should be carefully inspected for knicks, cuts or crimps. If you find several broken strands, replace the connection. In the case of crimped pins, most manufacturers will sell a replacement length of the appropriate colored wire with the pin installed.

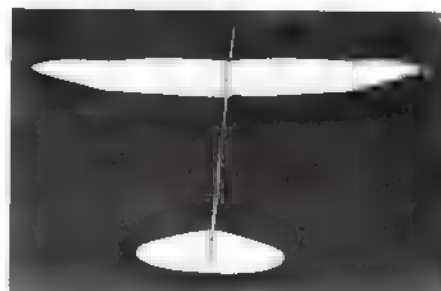
Make it a habit, when you insert or remove a plug, to put the force on the plug shell, not on the wires themselves. This will drastically cut down on maintenance. Don't break and re-make plug connections unnecessarily. Anchor plug blocks in the model by wrapping with foam and securing in the fuselage. This will reduce the effects of vibration on the plug connections.

If you experience a glitch or twitch of one control function and the range checks good, check all the wires and plugs next. You may well find one wire hanging by a few strands.

When all else fails, read the information provided by the manufacturer for your radio. He will probably have a few words on proper care of connectors.

## SUPERSWEEP

(Continued from page 35)



through it, when he has the part to the thickness he wants. But, in order to duplicate Ron's Supersweep, you will have to measure the thickness somehow. A one-inch micrometer caliper would work, except for the fact that the throat of the mike is often not sufficiently deep. The throat can be ground deeper, or a 1/4" extension can be cemented to the fixed anvil so that the deepest part of the throat is utilized.

A less expensive alternative is to use a machinist's outside spring caliper and a ruler with fine divisions. To prevent the tips from gouging the glider parts, balsa "feet" may be epoxied to the tips. Still another way is to measure from the work surface up to a straightedge laid across the top of the wing (equalize the measurements on both sides). The proper thicknesses of the various parts are indicated on the plans.

**Fuselage:** Sand the fuselage to an oval cross-section. Be sure not to round the edges in the regions where the wing



ARCO  
AIRCAM  
SERIES

NEW!

Each publication in the original ARCO AIRCAM series illustrates one type of model airplane. The ARCO AIRCAM series is the only one of its kind. Each volume contains a complete set of plans, including a supporting track and a set of plans for the wings, showing where necessary, cut, glue and glue surfaces, and a set of plans for the fuselage, more than half of which have never previously been published, and include three airframes, thousands of words of text.

- ☐ **VOUGHT F4U-17 CORSAIR** Star of the Pacific War, the most successful single-engine fighter of the war, outstanding fighter, \$3.25 RP.
- ☐ **GRUMMAN F6F-3/5 HELLCAT** Navy standard of the WW2, the most successful fighter of the war, outstanding fighter, \$3.25 RP.
- ☐ **LUFTWAFFE VOLUME 1** Covers the ME 109, FW 190, ME 110, Focke-Wulf Fw 190, Bf 109, Bf 108, Bf 107, Bf 106, Bf 105, Bf 104, Bf 103, Bf 102, Bf 101, Bf 100, Bf 99, Bf 98, Bf 97, Bf 96, Bf 95, Bf 94, Bf 93, Bf 92, Bf 91, Bf 90, Bf 89, Bf 88, Bf 87, Bf 86, Bf 85, Bf 84, Bf 83, Bf 82, Bf 81, Bf 80, Bf 79, Bf 78, Bf 77, Bf 76, Bf 75, Bf 74, Bf 73, Bf 72, Bf 71, Bf 70, Bf 69, Bf 68, Bf 67, Bf 66, Bf 65, Bf 64, Bf 63, Bf 62, Bf 61, Bf 60, Bf 59, Bf 58, Bf 57, Bf 56, Bf 55, Bf 54, Bf 53, Bf 52, Bf 51, Bf 50, Bf 49, Bf 48, Bf 47, Bf 46, Bf 45, Bf 44, Bf 43, Bf 42, Bf 41, Bf 40, Bf 39, Bf 38, Bf 37, Bf 36, Bf 35, Bf 34, Bf 33, Bf 32, Bf 31, Bf 30, Bf 29, Bf 28, Bf 27, Bf 26, Bf 25, Bf 24, Bf 23, Bf 22, Bf 21, Bf 20, Bf 19, Bf 18, Bf 17, Bf 16, Bf 15, Bf 14, Bf 13, Bf 12, Bf 11, Bf 10, Bf 9, Bf 8, Bf 7, Bf 6, Bf 5, Bf 4, Bf 3, Bf 2, Bf 1, Bf 0, Bf -1, Bf -2, Bf -3, Bf -4, Bf -5, Bf -6, Bf -7, Bf -8, Bf -9, Bf -10, Bf -11, Bf -12, Bf -13, Bf -14, Bf -15, Bf -16, Bf -17, Bf -18, Bf -19, Bf -20, Bf -21, Bf -22, Bf -23, Bf -24, Bf -25, Bf -26, Bf -27, Bf -28, Bf -29, Bf -30, Bf -31, Bf -32, Bf -33, Bf -34, Bf -35, Bf -36, Bf -37, Bf -38, Bf -39, Bf -40, Bf -41, Bf -42, Bf -43, Bf -44, Bf -45, Bf -46, Bf -47, Bf -48, Bf -49, Bf -50, Bf -51, Bf -52, Bf -53, Bf -54, Bf -55, Bf -56, Bf -57, Bf -58, Bf -59, Bf -60, Bf -61, Bf -62, Bf -63, Bf -64, Bf -65, Bf -66, Bf -67, Bf -68, Bf -69, Bf -70, Bf -71, Bf -72, Bf -73, Bf -74, Bf -75, Bf -76, Bf -77, Bf -78, Bf -79, Bf -80, Bf -81, Bf -82, Bf -83, Bf -84, Bf -85, Bf -86, Bf -87, Bf -88, Bf -89, Bf -90, Bf -91, Bf -92, Bf -93, Bf -94, Bf -95, Bf -96, Bf -97, Bf -98, Bf -99, Bf -100, Bf -101, Bf -102, Bf -103, Bf -104, Bf -105, Bf -106, Bf -107, Bf -108, Bf -109, Bf -110, Bf -111, Bf -112, Bf -113, Bf -114, Bf -115, Bf -116, Bf -117, Bf -118, Bf -119, Bf -120, Bf -121, Bf -122, Bf -123, Bf -124, Bf -125, Bf -126, Bf -127, Bf -128, Bf -129, Bf -130, Bf -131, Bf -132, Bf -133, Bf -134, Bf -135, Bf -136, Bf -137, Bf -138, Bf -139, Bf -140, Bf -141, Bf -142, Bf -143, Bf -144, Bf -145, Bf -146, Bf -147, Bf -148, Bf -149, Bf -150, Bf -151, Bf -152, Bf -153, Bf -154, Bf -155, Bf -156, Bf -157, Bf -158, Bf -159, Bf -160, Bf -161, Bf -162, Bf -163, Bf -164, Bf -165, Bf -166, Bf -167, Bf -168, Bf -169, Bf -170, Bf -171, Bf -172, Bf -173, Bf -174, Bf -175, Bf -176, Bf -177, Bf -178, Bf -179, Bf -180, Bf -181, Bf -182, Bf -183, Bf -184, Bf -185, Bf -186, Bf -187, Bf -188, Bf -189, Bf -190, Bf -191, Bf -192, Bf -193, Bf -194, Bf -195, Bf -196, Bf -197, Bf -198, Bf -199, Bf -200, Bf -201, Bf -202, Bf -203, Bf -204, Bf -205, Bf -206, Bf -207, Bf -208, Bf -209, Bf -210, Bf -211, Bf -212, Bf -213, Bf -214, Bf -215, Bf -216, Bf -217, Bf -218, Bf -219, Bf -220, Bf -221, Bf -222, Bf -223, Bf -224, Bf -225, Bf -226, Bf -227, Bf -228, Bf -229, Bf -230, Bf -231, Bf -232, Bf -233, Bf -234, Bf -235, Bf -236, Bf -237, Bf -238, Bf -239, Bf -240, Bf -241, Bf -242, Bf -243, Bf -244, Bf -245, Bf -246, Bf -247, Bf -248, Bf -249, Bf -250, Bf -251, Bf -252, Bf -253, Bf -254, Bf -255, Bf -256, Bf -257, Bf -258, Bf -259, Bf -260, Bf -261, Bf -262, Bf -263, Bf -264, Bf -265, Bf -266, Bf -267, Bf -268, Bf -269, Bf -270, Bf -271, Bf -272, Bf -273, Bf -274, Bf -275, Bf -276, Bf -277, Bf -278, Bf -279, Bf -280, Bf -281, Bf -282, Bf -283, Bf -284, Bf -285, Bf -286, Bf -287, Bf -288, Bf -289, Bf -290, Bf -291, Bf -292, Bf -293, Bf -294, Bf -295, Bf -296, Bf -297, Bf -298, Bf -299, Bf -300, Bf -301, Bf -302, Bf -303, Bf -304, Bf -305, Bf -306, Bf -307, Bf -308, Bf -309, Bf -310, Bf -311, Bf -312, Bf -313, Bf -314, Bf -315, Bf -316, Bf -317, Bf -318, Bf -319, Bf -320, Bf -321, Bf -322, Bf -323, Bf -324, Bf -325, Bf -326, Bf -327, Bf -328, Bf -329, Bf -330, Bf -331, Bf -332, Bf -333, Bf -334, Bf -335, Bf -336, Bf -337, Bf -338, Bf -339, Bf -340, Bf -341, Bf -342, Bf -343, Bf -344, Bf -345, Bf -346, Bf -347, Bf -348, Bf -349, Bf -350, Bf -351, Bf -352, Bf -353, Bf -354, Bf -355, Bf -356, Bf -357, Bf -358, Bf -359, Bf -360, Bf -361, Bf -362, Bf -363, Bf -364, Bf -365, Bf -366, Bf -367, Bf -368, Bf -369, Bf -370, Bf -371, Bf -372, Bf -373, Bf -374, Bf -375, Bf -376, Bf -377, Bf -378, Bf -379, Bf -380, Bf -381, Bf -382, Bf -383, Bf -384, Bf -385, Bf -386, Bf -387, Bf -388, Bf -389, Bf -390, Bf -391, Bf -392, Bf -393, Bf -394, Bf -395, Bf -396, Bf -397, Bf -398, Bf -399, Bf -400, Bf -401, Bf -402, Bf -403, Bf -404, Bf -405, Bf -406, Bf -407, Bf -408, Bf -409, Bf -410, Bf -411, Bf -412, Bf -413, Bf -414, Bf -415, Bf -416, Bf -417, Bf -418, Bf -419, Bf -420, Bf -421, Bf -422, Bf -423, Bf -424, Bf -425, Bf -426, Bf -427, Bf -428, Bf -429, Bf -430, Bf -431, Bf -432, Bf -433, Bf -434, Bf -435, Bf -436, Bf -437, Bf -438, Bf -439, Bf -440, Bf -441, Bf -442, Bf -443, Bf -444, Bf -445, Bf -446, Bf -447, Bf -448, Bf -449, Bf -450, Bf -451, Bf -452, Bf -453, Bf -454, Bf -455, Bf -456, Bf -457, Bf -458, Bf -459, Bf -460, Bf -461, Bf -462, Bf -463, Bf -464, Bf -465, Bf -466, Bf -467, Bf -468, Bf -469, Bf -470, Bf -471, Bf -472, Bf -473, Bf -474, Bf -475, Bf -476, Bf -477, Bf -478, Bf -479, Bf -480, Bf -481, Bf -482, Bf -483, Bf -484, Bf -485, Bf -486, Bf -487, Bf -488, Bf -489, Bf -490, Bf -491, Bf -492, Bf -493, Bf -494, Bf -495, Bf -496, Bf -497, Bf -498, Bf -499, Bf -500, Bf -501, Bf -502, Bf -503, Bf -504, Bf -505, Bf -506, Bf -507, Bf -508, Bf -509, Bf -510, Bf -511, Bf -512, Bf -513, Bf -514, Bf -515, Bf -516, Bf -517, Bf -518, Bf -519, Bf -520, Bf -521, Bf -522, Bf -523, Bf -524, Bf -525, Bf -526, Bf -527, Bf -528, Bf -529, Bf -530, Bf -531, Bf -532, Bf -533, Bf -534, Bf -535, Bf -536, Bf -537, Bf -538, Bf -539, Bf -540, Bf -541, Bf -542, Bf -543, Bf -544, Bf -545, Bf -546, Bf -547, Bf -548, Bf -549, Bf -550, Bf -551, Bf -552, Bf -553, Bf -554, Bf -555, Bf -556, Bf -557, Bf -558, Bf -559, Bf -560, Bf -561, Bf -562, Bf -563, Bf -564, Bf -565, Bf -566, Bf -567, Bf -568, Bf -569, Bf -570, Bf -571, Bf -572, Bf -573, Bf -574, Bf -575, Bf -576, Bf -577, Bf -578, Bf -579, Bf -580, Bf -581, Bf -582, Bf -583, Bf -584, Bf -585, Bf -586, Bf -587, Bf -588, Bf -589, Bf -590, Bf -591, Bf -592, Bf -593, Bf -594, Bf -595, Bf -596, Bf -597, Bf -598, Bf -599, Bf -600, Bf -601, Bf -602, Bf -603, Bf -604, Bf -605, Bf -606, Bf -607, Bf -608, Bf -609, Bf -610, Bf -611, Bf -612, Bf -613, Bf -614, Bf -615, Bf -616, Bf -617, Bf -618, Bf -619, Bf -620, Bf -621, Bf -622, Bf -623, Bf -624, Bf -625, Bf -626, Bf -627, Bf -628, Bf -629, Bf -630, Bf -631, Bf -632, Bf -633, Bf -634, Bf -635, Bf -636, Bf -637, Bf -638, Bf -639, Bf -640, Bf -641, Bf -642, Bf -643, Bf -644, Bf -645, Bf -646, Bf -647, Bf -648, Bf -649, Bf -650, Bf -651, Bf -652, Bf -653, Bf -654, Bf -655, Bf -656, Bf -657, Bf -658, Bf -659, Bf -660, Bf -661, Bf -662, Bf -663, Bf -664, Bf -665, Bf -666, Bf -667, Bf -668, Bf -669, Bf -670, Bf -671, Bf -672, Bf -673, Bf -674, Bf -675, Bf -676, Bf -677, Bf -678, Bf -679, Bf -680, Bf -681, Bf -682, Bf -683, Bf -684, Bf -685, Bf -686, Bf -687, Bf -688, Bf -689, Bf -690, Bf -691, Bf -692, Bf -693, Bf -694, Bf -695, Bf -696, Bf -697, Bf -698, Bf -699, Bf -700, Bf -701, Bf -702, Bf -703, Bf -704, Bf -705, Bf -706, Bf -707, Bf -708, Bf -709, Bf -710, Bf -711, Bf -712, Bf -713, Bf -714, Bf -715, Bf -716, Bf -717, Bf -718, Bf -719, Bf -720, Bf -721, Bf -722, Bf -723, Bf -724, Bf -725, Bf -726, Bf -727, Bf -728, Bf -729, Bf -730, Bf -731, Bf -732, Bf -733, Bf -734, Bf -735, Bf -736, Bf -737, Bf -738, Bf -739, Bf -740, Bf -741, Bf -742, Bf -743, Bf -744, Bf -745, Bf -746, Bf -747, Bf -748, Bf -749, Bf -750, Bf -751, Bf -752, Bf -753, Bf -754, Bf -755, Bf -756, Bf -757, Bf -758, Bf -759, Bf -760, Bf -761, Bf -762, Bf -763, Bf -764, Bf -765, Bf -766, Bf -767, Bf -768, Bf -769, Bf -770, Bf -771, Bf -772, Bf -773, Bf -774, Bf -775, Bf -776, Bf -777, Bf -778, Bf -779, Bf -780, Bf -781, Bf -782, Bf -783, Bf -784, Bf -785, Bf -786, Bf -787, Bf -788, Bf -789, Bf -790, Bf -791, Bf -792, Bf -793, Bf -794, Bf -795, Bf -796, Bf -797, Bf -798, Bf -799, Bf -800, Bf -801, Bf -802, Bf -803, Bf -804, Bf -805, Bf -806, Bf -807, Bf -808, Bf -809, Bf -810, Bf -811, Bf -812, Bf -813, Bf -814, Bf -815, Bf -816, Bf -817, Bf -818, Bf -819, Bf -820, Bf -821, Bf -822, Bf -823, Bf -824, Bf -825, Bf -826, Bf -827, Bf -828, Bf -829, Bf -830, Bf -831, Bf -832, Bf -833, Bf -834, Bf -835, Bf -836, Bf -837, Bf -838, Bf -839, Bf -840, Bf -841, Bf -842, Bf -843, Bf -844, Bf -845, Bf -846, Bf -847, Bf -848, Bf -849, Bf -850, Bf -851, Bf -852, Bf -853, Bf -854, Bf -855, Bf -856, Bf -857, Bf -858, Bf -859, Bf -860, Bf -861, Bf -862, Bf -863, Bf -864, Bf -865, Bf -866, Bf -867, Bf -868, Bf -869, Bf -870, Bf -871, Bf -872, Bf -873, Bf -874, Bf -875, Bf -876, Bf -877, Bf -878, Bf -879, Bf -880, Bf -881, Bf -882, Bf -883, Bf -884, Bf -885, Bf -886, Bf -887, Bf -888, Bf -889, Bf -890, Bf -891, Bf -892, Bf -893, Bf -894, Bf -895, Bf -896, Bf -897, Bf -898, Bf -899, Bf -900, Bf -901, Bf -902, Bf -903, Bf -904, Bf -905, Bf -906, Bf -907, Bf -908, Bf -909, Bf -910, Bf -911, Bf -912, Bf -913, Bf -914, Bf -915, Bf -916, Bf -917, Bf -918, Bf -919, Bf -920, Bf -921, Bf -922, Bf -923, Bf -924, Bf -925, Bf -926, Bf -927, Bf -928, Bf -929, Bf -930, Bf -931, Bf -932, Bf -933, Bf -934, Bf -935, Bf -936, Bf -937, Bf -938, Bf -939, Bf -940, Bf -941, Bf -942, Bf -943, Bf -944, Bf -945, Bf -946, Bf -947, Bf -948, Bf -949, Bf -950, Bf -951, Bf -952, Bf -953, Bf -954, Bf -955, Bf -956, Bf -957, Bf -958, Bf -959, Bf -960, Bf -961, Bf -962, Bf -963, Bf -964, Bf -965, Bf -966, Bf -967, Bf -968, Bf -969, Bf -970, Bf -971, Bf -972, Bf -973, Bf -974, Bf -975, Bf -976, Bf -977, Bf -978, Bf -979, Bf -980, Bf -981, Bf -982, Bf -983, Bf -984, Bf -985, Bf -986, Bf -987, Bf -988, Bf -989, Bf -990, Bf -991, Bf -992, Bf -993, Bf -994, Bf -995, Bf -996, Bf -997, Bf -998, Bf -999, Bf -1000, Bf -1001, Bf -1002, Bf -1003, Bf -1004, Bf -1005, Bf -1006, Bf -1007, Bf -1008, Bf -1009, Bf -1010, Bf -1011, Bf -1012, Bf -1013, Bf -1014, Bf -1015, Bf -1016, Bf -1017, Bf -1018, Bf -1019, Bf -1020, Bf -1021, Bf -1022, Bf -1023, Bf -1024, Bf -1025, Bf -1026, Bf -1027, Bf -1028, Bf -1029, Bf -1030, Bf -1031, Bf -1032, Bf -1033, Bf -1034, Bf -1035, Bf -1036, Bf -1037, Bf -1038, Bf -1039, Bf -1040, Bf -1041, Bf -1042, Bf -1043, Bf -1044, Bf -1045, Bf -1046, Bf -1047, Bf -1048, Bf -1049, Bf -1050, Bf -1051, Bf -1052, Bf -1053, Bf -1054, Bf -1055, Bf -1056, Bf -1057, Bf -1058, Bf -1059, Bf -1060, Bf -1061, Bf -1062, Bf -1063, Bf -1064, Bf -1065, Bf -1066, Bf -1067, Bf -1068, Bf -1069, Bf -1070, Bf -1071, Bf -1072, Bf -1073, Bf -1074, Bf -1075, Bf -1076, Bf -1077, Bf -1078, Bf -1079, Bf -1080, Bf -1081, Bf -1082, Bf -1083, Bf -1084, Bf -1085, Bf -1086, Bf -1087, Bf -1088, Bf -1089, Bf -1090, Bf -1091, Bf -1092, Bf -1093, Bf -1094, Bf -1095, Bf -1096, Bf -1097, Bf -1098, Bf -1099, Bf -1100, Bf -1101, Bf -1102, Bf -1103, Bf -1104, Bf -1105, Bf -1106, Bf -1107, Bf -1108, Bf -1109, Bf -1110, Bf -1111, Bf -1112, Bf -1113, Bf -1114, Bf -1115, Bf -1116, Bf -1117, Bf -1118, Bf -1119, Bf -1120, Bf -1121, Bf -1122, Bf -1123, Bf -1124, Bf -1125, Bf -1126, Bf -1127, Bf -1128, Bf -1129, Bf -1130, Bf -1131, Bf -1132, Bf -1133, Bf -1134, Bf -1135, Bf -1136, Bf -1137, Bf -1138, Bf -1139, Bf -1140, Bf -1141, Bf -1142, Bf -1143, Bf -1144, Bf -1145, Bf -1146, Bf -1147, Bf -1148, Bf -1149, Bf -1150, Bf -1151, Bf -1152, Bf -1153, Bf -1154, Bf -1155, Bf -1156, Bf -1157, Bf -1158, Bf -1159, Bf -1160, Bf -1161, Bf -1162, Bf -1163, Bf -1164, Bf -1165, Bf -1166, Bf -1167, Bf -1168, Bf -1169, Bf -1170, Bf -1171, Bf -1172, Bf -1173, Bf -1174, Bf -1175, Bf -1176, Bf -1177, Bf -1178, Bf -1179, Bf -1180, Bf -1181, Bf -1182, Bf -1183, Bf -1184, Bf -1185, Bf -1186, Bf -1187, Bf -1188, Bf -1189, Bf -1190, Bf -1191, Bf -1192, Bf -1193, Bf -1194, Bf -1195, Bf -1196, Bf -1197, Bf -1198, Bf -1199, Bf -1200, Bf -1201, Bf -1202, Bf -1203, Bf -1204, Bf -1205, Bf -1206, Bf -1207, Bf -1208, Bf -1209, Bf -1210, Bf -1211, Bf -1212, Bf -1213, Bf -1214, Bf -1215, Bf -1216, Bf -1217, Bf -1218, Bf -1219, Bf -1220, Bf -1221, Bf -1222, Bf -1223, Bf -1224, Bf -1225, Bf -1226, Bf -1227, Bf -1228, Bf -1229, Bf -1230, Bf -1231, Bf -1232, Bf -1233, Bf -1234, Bf -1235, Bf -1236, Bf -1237, Bf -1238, Bf -1239, Bf -1240, Bf -1241, Bf -1242, Bf -1243, Bf -1244, Bf -1245, Bf -1246, Bf -1247, Bf -1248, Bf -1249, Bf -1250, Bf -1251, Bf -1252, Bf -1253, Bf -1254, Bf -1255, Bf -1256, Bf -1257, Bf -1258, Bf -1259, Bf -1260, Bf -1261, Bf -1262, Bf -1263, Bf -1264, Bf -1265, Bf -1266, Bf -1267, Bf -1268, Bf -1269, Bf -1270, Bf -1271, Bf -1272, Bf -1273, Bf -1274, Bf -1275, Bf -1276, Bf -1277, Bf -1278, Bf -1279, Bf -1280, Bf -1281, Bf -1282, Bf -1283, Bf -1284, Bf -1285, Bf -1286, Bf -1287, Bf -1288, Bf -1289, Bf -1290, Bf -1291, Bf -1292, Bf -1293, Bf -1294, Bf -1295, Bf -1296, Bf -1297, Bf -1298, Bf -1299, Bf -1300, Bf -1301, Bf -1302, Bf -1303, Bf -1304, Bf -1305, Bf -1306, Bf -1307, Bf -1308, Bf -1309, Bf -1310, Bf -1311, Bf -1312, Bf -1313, Bf -1314, Bf -1315, Bf -1316, Bf -1317, Bf -1318, Bf -1319, Bf -1320, Bf -1321, Bf -1322, Bf -1323, Bf -1324, Bf -1325, Bf -1326, Bf -1327, Bf -1328, Bf -1329, Bf -1330, Bf -1331, Bf -1332, Bf -1333, Bf -1334, Bf -1335, Bf -1336, Bf -1337, Bf -1338, Bf -1339, Bf -1340, Bf -1341, Bf -1342, Bf -1343, Bf -1344, Bf -1345, Bf -1346, Bf -1347, Bf -1348, Bf -1349, Bf -1350, Bf -1351, Bf -1352, Bf -1353, Bf -1354, Bf -1355, Bf -1356, Bf -1357, Bf -1358, Bf -1359, Bf -1360, Bf -1361, Bf -1362, Bf -1363, Bf -1364, Bf -1365, Bf -1366, Bf -1367, Bf -1368, Bf -1369, Bf -1370, Bf -1371, Bf -1372, Bf -1373, Bf -1374, Bf -1375, Bf -1376, Bf -1377, Bf -1378, Bf -1379, Bf -



and stabilizer are to be glued. Here is how you can check to determine whether the fuselage has been sanded down enough—or too much! Clamp the fuselage to a table with the trailing edge of the wing mount at the edge of the table. Hang a 100 gram (3½ oz.) weight on the tailboom at the stabilizer LE position. The extreme end of the boom should deflect no more than 1/2".

The next step will be the most difficult. Take all the finished components, put them in a safe place, and wait for the October issue of AAM. Don't attempt to glue anything together, since there are subtle techniques involved, especially Ron's "magic potion" finishing techniques. If you are impatient, make a duplicate set of parts and complete an SS your way. Next month, finish one Ron's way and compare them. You'll be shocked at the difference proper methods can make in better flight time. Until next month, happy hand chucks!

### THE 'ELECTRI-FLYING'

(Continued from page 41)

The meter/storage box and transmitter caddy are made of 1/4" plywood and masonite. The meter box is a 3¼ x 4¼" piece of masonite (to serve as a meter panel) across two 3¼ x 7-3/8" plywood strips which serve as box sides. The box ends are tapered to fit the launch box and placed at the end and midsection of the meter box. The end piece, located in the midsection, serves as a divider between the meter and storage area. The end adjacent to the battery pack is left open to provide easy access to the wiring and clip system. Holes are drilled in the masonite panel to accommodate the D.C. ammeter, variable resistor and charging terminals (4-40 x 1" machine screws). The box is finished with contact paper, and the charging terminals are color coded to correspond with the poles of the battery pack. (See sketch for color codes.)

The transmitter caddy is a box construction and is designed to hold the transmitter without interfering with the stick or trim tab. You might be able to find a plastic box at the local discount store which will serve the same purpose. I mounted the caddy on the launch box with 1/2" wood screws in such a way that it serves as a counterbalance to the battery pack.

The kitchen timer is mounted by drilling holes through both timer and lunch box and fastening with small bolts. Make sure the timer is positioned in such a way that it is easily read and that it does not interfere with the batteries, meter or terminals when the box is closed.

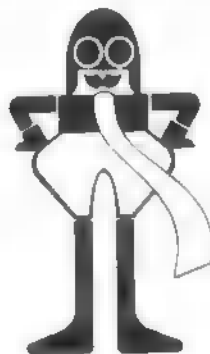
Wiring the launch box looks difficult, but it is really quite simple, as the photo and drawing show.

#### Correction

The AAM Weathermaster in August erroneously showed a light bulb in the diagram (page 48). The bulb should not appear anywhere in the circuit.

# Introducing... ECONOMY PAK SILKSPUN COVERITE

**3<sup>50</sup>**  
**per pak: 27x38**



**Coverite, 119 York Rd., Jenkintown., Pa., U.S.A.**

**R/C BOATERS:**

**EXCUSE US IF WE STRUT A BIT!**

Made of high tensile strength extruded aluminum

**PARALLEL STRUT** \$295 ea.

Complete with 2 Nylon Bearings 2 Screws & 1 Nut

11 1/2" Depth 11 1/2" Depth 11 1/2" Depth 11 1/2" Depth 11 1/2" Depth

11 1/2" Depth 11 1/2" Depth 11 1/2" Depth 11 1/2" Depth 11 1/2" Depth

Shaft - steel \$150 ea. 3 1/4" long

3/16" DIA. PROPELLER SHAFT & DRIVE DOG COMBINATION

To be used with any of Parallel Struts at left.

Drive Dog - Hardened, plated steel supplied with 8-32 nut-point set screw

3 1/2" Bore 11 1/2" long

**BALL THRUST BEARING** 11 1/2" O.D. \$1.80

**LOWER UNIVERSAL JOINT SET** \$235

Hardened, plated steel. Use with Parallel Strut 2 1/2" to 3 1/2" shaft - 00610 F & M 3 1/2" to 4 1/2" shaft - 00612 F & M

**STREAMLINED TAIL NUT** plated 11 1/2" long, 10-32 thread, 75c ea.

00610N - 11 1/2" 00612N - 3 1/2"

**OCTURA MODELS**

If dealer cannot supply you—order direct—add 10% for postage and handling—Illinois customers include Sales Tax.

9148 W.D. MILWAUKEE AVE. • NILES, ILLINOIS 60648

## Amazing new paint is PERFECT

R&S Hobby Products has an exciting new model paint. It's "Perfect." Whether brushed, sprayed or rolled on, "Perfect" Paint goes further and dries smooth in 4-6 hours with no brush marks and very little odor.

"Perfect" Paint covers all dopes, epoxies, wood, metal, fiberglass and Monokote. It does not affect styro-foam.



**R&S HOBBY PRODUCTS, INC.**

P.O. Box 61 • Oak Lawn, IL 60451  
(312) 458-6994

There are 11 glossy colors: Red, Light Blue, Royal Blue, Yellow, Orange, Light Green, Spring Green, Aluminum, Purple, Black and White. Also available in Flat Black and White, Colorless Clear for the "wet" look and Flat Satin.

**139¢ 4 oz. 199¢ 8 oz.**

The construction of the launch box is simple and inexpensive (under \$20), and very little time is needed to complete the project. Not only does the launch box charge your flight power pack, carry extra gear and tell you when you are ready to fly, but it charges your transmitter and flight pack batteries, fires the Estes rockets (if you are a rocket fan) and carries a sandwich or two and a pack of potatoe chips for those short ten minute charging breaks between flights.

## PAINT FOR PERFORMANCE

(Continued from page 50)



Larger and slanted membership numbers with angled color bands give a whole new look to this wing.

Don't forget to put some trim on the tail surfaces, particularly the fin and rudder. You will find that your ability to trim the tail clearly in combination with the wing will assist in determining the pitch attitude and, again, improve flying performance.

That's about it and I must admit that it all seems obvious. However, too many fliers neglect this "Paint for Performance" factor and handicap themselves when they get to the flying field. Whether you are a beginner or an expert, your flying performance will be improved if you keep these suggestions in mind when painting your next plane.

## YANKEE

(Continued from page 53)

## "FLITE LIFE" AUTOMATIC BATTERY ANALYZER

This invaluable tool will assure many hours of trouble free flying!



Only **\$29.95**

NO COD

To insure fast service

Money Order or

Certified Check

please add \$1 postage

N.Y. residents add 7% sales tax

TO INSURE FULL RECEIVER & TRANSMITTER BATTERY CAPABILITY "FLITE LIFE" WILL PERFORM THE FOLLOWING SERVICE:

- Cycle battery to break memory and restore full capability.
- Times the discharge rate of batteries.
- Prevents memory from developing — determines flight capability.
- Automatic Shut-Off prevents battery damage.
- Operates unattended — shuts off at critical voltage.
- Provides a load to assist in finding a cell.
- Checks airborne batteries for vibration.
- Tells the amount of flying time to expect from your batteries.

COMPLETE WITH INSTRUCTION MANUAL

## LARRY'S HOBBY SUPPLY

2094 Front Street  
East Meadow N.Y. 11554  
phone 516-489-7166  
Weekdays 11am — 9pm  
Closed Tuesday & Sunday

INQUIRY INVITED  
No Answer Without  
Self-Addressed  
Stamped Envelope

Address all Inquiries & Mail Orders  
TO THIS ADDRESS

Jencho Turnpike  
East Northport N.Y. 11731  
516-664-7166

Weekdays 12am — Sat 10am — 6pm  
Closed Wednesday & Sunday

## THE "CLEAN" MACHINE

THE ALPHA POWER UNIT- Electric Propulsion System for Model Planes

- Clean, quiet, always starts
- Flies many kit planes, not just one
- Flight tested on both R.C. and free flight planes
- Quality and performance guaranteed
- Light weight-8.5 ounces • Quick recharge-11 mins.
- Long run-8 mins.

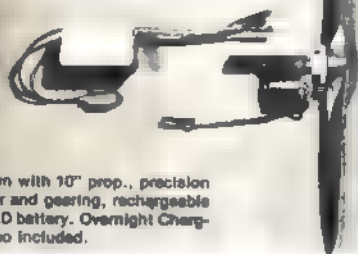
**PRICE ONLY \$54.95 including Recharger Completely Assembled**

ALPHA TIMER-Pushbutton control for free flight

Price \$22.95 completely assembled

MO CONTROL R.C. MOTOR CONTROLLER-Two channel control from a single channel Price \$18.95 assembled

## THE ALPHA POWER UNIT



Shown with 10" prop., precision motor and gearing, rechargeable NICAD battery. Overnight Charger also included.

**GALLER ELECTRONIC INDUSTRIES**

P.O. Box 87, South Walpole, Mass. 02071

Send for free brochure. Dealer inquiries invited.  
Tel. (617) 668-0467



that a minimum of power is lost from the roaring power plant hanging on the front. Not only is it smart to reduce vibration so that a maximum of power is obtained, but also to protect the radio equipment and integrity of the fuselage. No one likes to have cracks show around the firewall half way through the season.

I am using muffler pressure. A small

bonus to a side-mounted engine is that the tank pressure line does not have to be disconnected from the muffler when filling the tank. Just let the overflow drain out the end of the muffler.

Tank location is critical for optimum performance, and the Yankee's fuel tank is located so that its center line is exactly in line with the engine carburetor center line. This location of the 12-oz. tank does prevent the nose wheel from being completely hidden in its retracted position, but first things first, and that means tank position before looks. Two other features of the tank installation are that it is removable for service without a hatch. An access hole in the front of the tank floor allows inspection of fuel lines to insure they are not restricted in any way.

Next to the tank, and mounted inside the fuselage side, is an important feature of the nose gear steering linkage. I have shown a pictorial view on the plans to help explain the construction. A problem with designs in which the wing is pushed up into the fuselage nearer the thrust line is to provide an adequate steering linkage to the nose gear, since it can seldom be accomplished with a straight line pushrod. A common solution is to use flexible cable in tubing but I have found this to be inadequate, because a zero stop condition cannot be obtained.

The linkage in the Yankee provides the precision of a single straight pushrod, while accommodating the misalignment between the rudder servo and the nose gear steering arm. It is very simple, and only two factors must be achieved. One is that the 1/16" wire from the rudder servo must be rigidly supported at two bearing points no more than 1 1/2" apart. These bearing points are the plywood former F-2 and a hardwood block glued to the fuselage side, both of which have clearance holes for the 1/16" wire pushrod. The second factor is a 1/2" wide strip of sheet brass of .032 thickness which is soldered to the ends of the wire pushrods. Bend the ends of the brass strip around the wire to insure a solid joint. I think you will find this linkage rather simple to make and free from unwanted play.

Moving toward the tail, the next thing worth mentioning is the fillet construction. Large wing fillets are important in reducing turbulence, as well as providing a good bearing surface for the wing—not to mention their aesthetic value. I've made fillets from balsa blocks and completely from fillet materials such as Epoxo-lite or micro-balloons in epoxy or resin. The technique used on the Yankee, however, has proven to be the most simple and lightest in weight. These fillets are made of foam covered with a thin coating of Epoxo-lite. After the wing is properly aligned to the fuselage and secured with the conventional dowels and 1/4-20 nylon screws, a fillet saddle of 1/64" plywood is layed on the wing and butted against the fuselage side. Then several rough-cut blocks of foam are glued in place. A few minutes with coarse sandpaper wrapped around a large dowel and then a light coating with Epoxo-lite is all that is required.

# NOW A CHOICE!

By Popular Demand . . .

**TWO SUPERLIGHT  
DIGITAL PROPORTIONAL SYSTEMS**  
LIGHT ENOUGH FOR .010 — POWERFUL ENOUGH FOR .60's

BY CANNON



## The NEW TINI-TWIN

The lightest and smallest system available with 2 servos

### RECEIVER-SERVO BLOCK:

Twin servo unit offers more versatility than TINI-BLOCK. Size 1 1/2" x 1 1/2" x 2". Weight 2.7 Oz.

## The TINI-BLOCK

Still the smallest system for single channel operation

### RECEIVER-SERVO BLOCK:

Fast, precise servo action. Extra-range I.C. receiver. Size 1 3/8" x 1 1/8" x 1 1/8". Weight 1 Oz. . . . Weight with additional servo 3.2 Oz.

\*Add 1.9 ounces for 225 mah battery.

MADE IN U.S.A.

*We're not light as a feather . . .  
but we're working at it!*

Radio-control your smallest model aircraft, boat, or car with the TINI-TWIN or TINI-BLOCK. Both systems are so versatile they can be used for rudder only and up to and including Full House (4 Channels). Complete systems — assembled, wired and ready-to-fly . . . includes transmitter and receiver-servo block . . . additional servos when specified.

Included ■ **NO EXTRA COST:** Optional 225 or 500 mah nickel-cadmium airborne battery pack and separate charger.

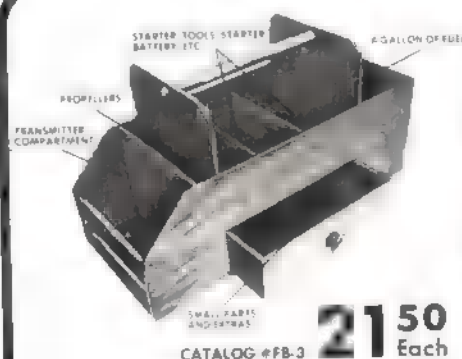
| TINI-TWIN  |          | TINI-BLOCK |          |
|------------|----------|------------|----------|
| N.A.       |          | 2 Channels | 1 Servo  |
| 2 Channels | 3 Servos | 2 Channels | 2 Servos |
| 3 Channels | 3 Servos | 3 Channels | 3 Servos |
| 4 Channels | 4 Servos | 4 Channels | 4 Servos |
|            |          |            |          |
|            | \$109.95 |            |          |
|            | \$134.95 |            |          |
|            | \$174.95 |            |          |
|            | \$224.95 |            |          |

Factory assembled only. 27 MHz prices shown. Add \$10.00 for 72 MHz.

Write for brochure on entire line of CANNON R C SYSTEMS.

**CANNON**  
ELECTRONICS  
WORLD'S LEADING MANUFACTURER OF  
SUPERLIGHT DIGITAL R C SYSTEMS

13400-26 SATICOY STREET  
HOLLYWOOD, CA. 91605  
(213) 764-1488



## FIELD BOX

- MADE OF SELECT PLYWOOD
- PRECISION CUT AND GROOVED FOR FAST, EASY, ACCURATE ASSEMBLY.

Available in kit form only, complete with all hardware. You supply only the glue, stain and varnish.

**J.C.M.**  
SPECIALTIES

Ask for them at your hobby dealer's or order direct from:  
JCM Specialties, Box 194, Addison, Illinois 60101





# BILLING BOATS® announces the New Spanish Galleon

Detailed model, using planked hull construction, fully rigged. Length 29 inches. Width 6 inches. Height 24 inches. Typical of the old Spanish Galleons, it is constructed on the basis of drawings and descriptions found in long research. It includes several colored coats of arms, has mounted sails, and includes turned brass fittings, including cannons.

No. 463 Boat kit \$28.00  
No. 464 Fitting set \$28.00

**CAVEFF, INC.**  
511 Campesina Road  
Arcadia, California 91006

Billing Boats® Reg. U.S. Patent Office

See your Hobby Dealer... or send \$1.00 for a color catalog. If dealer does not stock, send check or money order for direct prompt shipment. California orders must add 5% sales tax. Satisfaction guaranteed.

The main landing gears are mounted on 3/16" plywood plates, which are recessed into the foam wing core. In the past, I have spent much time with maple rails and plywood ribs to provide a main gear mount. Not only is the 3/16" ply plate totally adequate, but it is lighter and faster than the inlaid hardwood rails. If you are accustomed to making hard landings, or flying from extremely rough surfaces, you may want to drill through the plates at two locations and insert 1/4" dowels through the plates to

the top wing surface. I have not found this to be necessary, however.

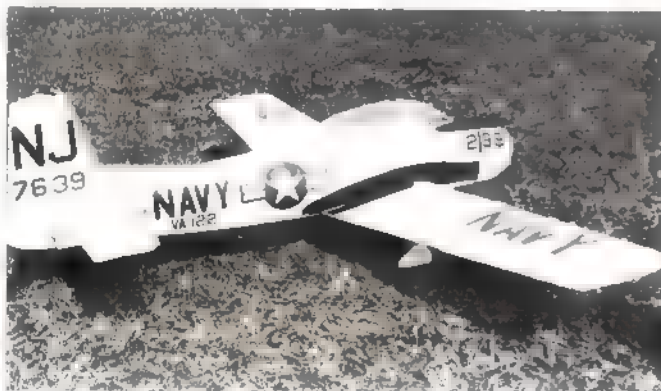
All three Pro-Line retract gears are operated by one 180° servo mounting in the wing. This can also be a problem when the wing is near the thrust line, since the nose gear is considerably lower than the top of the wing, where the main gear linkage and retract servo are located. My solution to this problem is to use a straight bellcrank to transfer the nose gear pushrod action from the servo at the top of the wing to the lower

nose gear. The homemade bellcrank is mounted to a substantially large maple block, which is glued directly into a hole in the foam wing core. This hole extends completely through the core, from top to bottom, and is large enough to accommodate the bearing block and the motion of the bellcrank. The bellcrank extends from just beneath the top wing skin through the bottom wing skin. The 1/16" wire pushrod from the nose gear attaches to the bellcrank below the wing and within the center filler

## **dave platt models**

the best looking...and best flying...standoff scale kits

**AND NOW THERE ARE TWO!**



### NEW T-28B TRAINER

Designed especially for the newcomer to low-wings, the market's safest introduction to R/C's most popular event. All balsa wood construction, very simple to make from well-detailed plans. A standout at the flying field. For .60 engines, 65" span

\$64.95



### SPITFIRE WINS TANGERINE!

It didn't take long for our Spitfire to start winning. If you want trophies, you'll get highest static and flying points with the most-developed design you can get — Dave Platt Spitfire.

For .40 — .60 engines, 65" span.

\$59.95

P.S. Have you seen the Dave Platt decals? ■ just added ■ more—ask your dealer about them.

 **dave platt models inc**  
1300C W McNAB RD FT LAUDERDALE FLORIDA 33308

Distributor enquiries invited

piece. It exits the wing through a hole below the leading edge. A pictorial sketch is included on the plans for clarification.

While on the subject of landing gear, I will mention two other items. One is to be sure to place pieces of foam rubber in the wheel wells to absorb vibration when the wheels are retracted. This vibration is a significant cause of retract gear wear, since more time is spent with the gear up when the engine is running than with the gear down. The second item is a simple way to provide a neat appearance to the bottom of the wing wheel wells—if you really care, that is. I found that the bottom of plastic margarine containers gives a nice finishing touch to the wheel wells. They are very lightweight.

Very important factors in achieving a plane with smooth and precise control response are the way the control surfaces are fitted and hinged. Ailerons, elevators and rudder must be shaped so that they are an exact continuation of the mating surfaces. Also, hinge line gaps must be kept to a minimum, preferably zero, since the slightest gap will cause a reduction in control response, along with increased drag.

In order to achieve a perfect fit for my control surfaces, I use the following procedure. I always start with sheet balsa of adequate thickness. Trailing edge stock is never the correct taper and, what's more, it's more expensive. Cut the sheet to the proper width or chord, then insert at least three hinges

per surface, being sure that they are in a straight line. Do not permanently glue the hinges at this time. Now tack-glue the sheet stock in place with hinges inserted. Shape the ailerons, elevators and rudder with a razor plane and sanding block until they are to the same contour as their respective mating surfaces. When the shaping is complete, break the surface loose and remove the hinges. With a straightedge and razor plane, shape their leading edges to a V so that the correct amount of control deflection can be obtained. When the surfaces are finally hinged in place you will find that they fit precisely and will provide maximum performance.

As I said earlier, keep the hinge line gap to a minimum when securing the hinges. I find that this is best accomplished by using the "no-pin" hinges. However, if a pinned hinge is used, be sure to recess the hinge enough to eliminate the gap, and be careful not to get glue into the hinge point.

It may not seem important to most builders to worry about hinge line gap. However, I can assure you that its importance is very significant in obtaining good control response on your plane. The whole idea is to prevent air from flowing through the hinge line, thereby reducing the control response. Have you ever had a plane that required a large amount of surface movement before a satisfactory degree of control was obtained? If so, check the hinge line gap and if you're too lazy to re-install the hinges properly, place a strip of tape or

MonoKote along the hinge line and see the difference. You may be surprised to find that the necessary deflection can be reduced by half, while maintaining the same control response. This greatly reduces the drag from the deflected surface.

For those of you who are interested in specifications, I have tabulated the following information:

#### WING

Area—700 sq. inches  
Span—64"  
Mean Chord—11 3/8"  
Root airfoil—15% Symmetrical  
Tip airfoil—15% semi-symmetrical  
L.E. sweep—7°  
Dihedral—3/4" each tip; 1 1/2" total  
Aspect ratio—5.6

#### STABILIZER

Area—167 sq. inches (24% of wing)  
Span—26"  
Mean Chord—6 1/4"  
Airfoil—12% symmetrical  
Aspect ratio—3.9

#### FUSELAGE

Length—46"  
Nose moment—14"  
Tail moment—28"

#### WEIGHTS

Wing—2 lb. ■ oz. without servos & landing gear  
2 lb. 12 oz. with servos & landing gear  
Fuselage—2 lb. ■ oz. without engine,



**PYLON BRAND**  
Fuel Caddy Alone \$4.00  
12V fuel pump alone \$11.95  
Fuel Caddy with 12V Electric Pump \$13.95 - Ind. Spec. \$10.99



**PROTECT YOUR EYES!**  
Safety Goggles \$3.95



**Power Panel**  
List \$19.95  
Indy Spec. - \$13.85  
Please specify voltage of when ordering.



**KAVAN STARTER**  
List \$19.95  
Indy Spec. \$33.95



7 ■, dual stick, comp. list \$499.95, Ind. Spec. \$381.00  
5 CH, comp. dual stick list \$449.95, Ind. Spec. \$347.00



**12V dry charged wet cell**  
ONLY \$11.95



**OS ENGINES**  
40 R/C S.R. Racing Engine  
List \$89.98 Spec. \$55.00  
Also exhaust adp. \$1.95  
OS ■ R/C F.I.  
List ■ Spec. \$39.95  
OS 35 R/C  
List \$32.98 Spec. \$26.00  
Not pictured  
OS 30 R/C List \$32.98 Spec. \$26.00



**HAROLD SAYS:**  
Clean and wax plane in ONE STEP!  
Only \$2.95 quart  
Spray Nozzles \$1.50



**Beat X**  
BUY  
Fox 15 U/C ENG. \$15.95  
OR  
Fox 19 U/C ENG. \$17.95  
Receive FREE \$12.95 Beat-X Balsa - Combat Kit



**WORLD ENGINES EXPERT SERIES!**  
Pictured 7 channel, complete with 5 (1 Retract) List \$399.95 Only \$249.95  
■ channel, complete with 4 servos List \$330.00 Only \$199.95



**SHEET STIK**  
LIST \$37.95  
INDY SPEC. \$27.00



**AC SPORT FAN**  
LIST \$37.95  
INDY SPEC. \$27.00



**Indy C**  
10538 Jessup Blvd., Indianapolis, Indiana 46280  
HOW TO ORDER: CH  
CALL FOR FAST C.O.D. SERVICE  
INDIANA RESIDENTS ADD 4% SALES TAX  
ARE OUT OF UPS ZONE, \$1.00 TO COVER COST OF INSURANCE.



**We Pay The Postage On All Orders\***  
\*Fuel & Paint Shipped by Most Suitable Carrier.



# THE LEADER



16 Oz. 18 colors

18 colors

4 Oz. 36 colors

with **andsons!**

# AeroGloss

ALL-TIME "BEST FINISH AWARDS" WINNER • 40 COLORS • HOT FUEL PROOF

**pacra industries, inc.**

8725 Sunset Boulevard • Los Angeles, CA 90028

ORDER THE PLANS  
FOR YOUR NEXT MODEL  
FROM OUR PLANS SERVICE  
SEE PAGE 11

radio & L.G.

4 lb. 12 oz. with engine, radio & L.G.

Total flying weight—7½ lb.

## CONTROL DEFLECTIONS

Aileron—1/4"

Elevator—3/8"

Rudder—1½"

## MISCELLANEOUS

Landing Gear Thread—16"

Incidence—Wing 0°; Stab 0°

Power—Webra 61

Everyone has his own favorite finishing techniques, and I'm no different. Since the procedure I use may be different from most, I'll explain it briefly. First of all, there is only one coat of dope on my plane and that is used for the sole purpose of attaching the silk to the fuselage and the silkspan to the wing and tail surfaces. I start by sealing the wood with a coat of clear epoxy paint. When this is dry, it is sanded lightly to remove all whiskers. Then the silk and silkspan are attached with one coat of thinned clear dope.

After the dope has thoroughly dried for at least 24 hours, two more coats of clear epoxy paint are brushed on and scraped to a smooth finish with single-edged razor blades. Now you are ready for the epoxy primer and then color (sprayed, of course). I use this finish for several reasons. It is light, the absence of dope prevents shrinking and therefore seams don't show as much and, lastly, the finish is very durable and fuelproof. It's great if your wife can't stand dope fumes, too.

Well, that's about it. I hope you will build the Yankee and join in the fun of pattern competition. Build it carefully, and then practice—your contest experience will be rewarding. I also hope that the few construction tips that I have mentioned will help you be a better modeler and build a better Yankee.

## R/C Sport Scale



Cessna 150 AEROBAT

- All balsa kit — Only \$59.95
- For .45 to .60 engines
- Wing Span 65 inches
- Weight 4 pounds

Designed by  
**Bob Doremus**

## Hand Crafted Models

5408 SIR ROBERT  
SAN ANTONIO, TEXAS 78219  
(512) 641-2978



Messerschmitt

Spitfire

- All balsa kits — Only \$75.00 each
- For .60 engine
- 66 inch wing spans
- Weight 5 pounds

# Cleveland

"ROLLS" OF THE MODEL FIELD

600 WORLD'S MOST AUTHENTIC MODEL PLANS

BEST IN MODELS FOR OVER A HALF CENTURY

WWI - Golden Era - WWII - Racers - Moderns - Jets

You can search to the ends of the earth, but you'll

never come up with anything even remotely approach-

ing the Cleveland-Designed line of the famous C-D's.

Sure they're costly, but when you want anything

that's good you're willing to pay for it, and in aircraft

plans this is it.

Scratchbuilding is coming into its own today and C-D's

are blazing the trail for those modelers who complain

"But the finished model is not at all like the authentic

plane on the box and I did a good job according to

their plans," adding "When I built your models they

always came out like the picture on the box—I was

proud of them." OVER 12-CENTURY EXPERIENCE

FAMOUS OLD C-D PLANS RETURN!

MANY BLOWN UP FOR GAS POWER

CATALOG SEND \$6 TODAY—2 YEARS \$110

DEDUCT 10¢ IF YOU SEND COIN OR CURRENCY

4 HR. SHIPPING SERVICE—EXCEPT NEWEST DESIGNS

CLEVELAND MODEL & SUPPLY CO.

10707B Detroit Ave., Cleveland, Ohio 44102

10707B

10707B

10707B

10707B

10707B



**MODEL  
AVIATION**

Official  
Magazine

Editor: Carl Wheeley

**AMA  
NEWS**



**ACADEMY OF MODEL AERONAUTICS**  
806 Fifteenth Street, N.W.  
Washington, D.C. 20005

World's Largest Sport Aviation Organization

**INTERESTED IN JOINING AMA?**  
Over 48,000 did in 1973.

Details may be had by requesting  
**FREE BROCHURE** from above address

# After You, Mr. daVinci

by Robert Lopshire

## Leonardo Would Have Loved Aero-Crafts '74!

Rumor has it that Leonardo DaVinci was the first business man to get away from it all by going bananas over model airplanes. Today model builders get away from modeling by going into business to sell their wares to other modelers, and while "Lenni" went heavily into museums, it seems only fitting that the cycle should continue and find modelers today going into museums too . . . the thought of which would have created laughter almost anywhere not too long ago when you stop to think about it.

Then along came an idea. Robert Nobel, Curator of The Museum of The Philadelphia Civic Center, saw a show that AMA had run at a large Philadelphia department

store—all to do with radio controlled miniature aircraft. Fascinated, he inquired, as did large numbers of other viewers of that show, where such devices were manufactured, and where one might purchase such a fun machine. Told that all were *hand made*, he became ecstatic. His wonderment at finding actual handmade artifacts, made by the natives here in America, led to his idea of showing his find to other Americans. He would seek out these practitioners of the dying American art of craftsmanship and bring them all together in one great show. His find would be recorded by history, and curators across the land would be appalled and properly amazed at his ingenuity in rooting out and staging such a wondrous show.

After great diligence, Mr. Nobel found the cult to which these craftsmen belonged—the American Model Association, the name usually given AMA by those

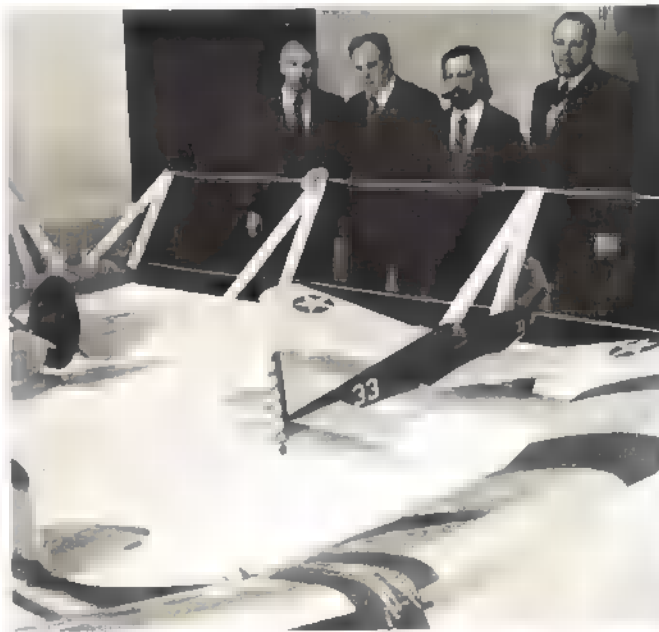
around the country whose ears tend to clog at the true title of the organization. However, once he found the true identity of the organization to be the Academy of Model Aeronautics, Mr. Nobel went to Executive Director John Worth and PR Director Bob Lopshire with his idea of showing modeling to the American public as one of the last surviving art forms in a nation obsessed with buying things made in Japan . . . or Germany.

So it was that "Aero-Crafts '74" came into being . . . or at least *somewhat* along these lines . . . and, too, the reader should realize that in his quest, Mr. Nobel did indeed achieve a mighty first he reached out and took the work of modelers to show it as an *art* form.

Art? Before you take a disdainful view of that term, stop to consider the facts. When a sculptor sculpts, he works with clay, wood, or stone. He creates in three dimensions. So does a modeler. When a



Above: The Aero-Crafts '74 winning Free Flight Soaring entry, an A-2 Glider, was constructed by Yolanda Mapp, MD (left). She's shown telling how it was done to Ronald Barber, assistant director of the Philadelphia Civic Center. Right: Dignitaries on hand for the opening reception of Aero-Crafts '74 included (L-R) John Pierron, executive director of the Philadelphia Civic Center; John Worth, AMA executive director; Ronald Barber; Earl Witt, AMA secretary-treasurer.



painter paints, he works with form and color. So does a modeler. When an artist or photographer makes his final interpretation, he shoots for form, realism, excitement. So does a modeler. When a Wyeth does a painting he works for total realism and mood. So does a modeler. We could go on for pages on this idea. Mr. Nobel saw it all in his first glance at his first viewing of models . . . and created the first-time-ever showing of model building as an art-form . . . the very precise category in which it belongs.

That will serve for openers. How did the show go? Smashing! Leonardo would have loved it . . . Philadelphians **did** love it. Media coverage of the show went forth to the over eight million residents of the Delaware Valley by way of radio, TV, and newspapers, and the crowds who came to see the show were heavily impressed with what those "secret fellows" among them were up to. They were also impressed with the fact that entries in the show had come from as far away as *California*. A Californian had in fact won five awards in the show . . . (an *amazing* feat for someone from the wild-west . . .).

The museum gave a reception on opening night for contestants, museum supporters, trophy sponsors, and "other dignitaries." The most impressed group attending were the trophy sponsors, many of whom were those who had escaped modeling by becoming manufacturers for other modelers, obtaining their supplies, for the most part, in places like Japan and Germany.

The evening went well for all . . . all but one little old lady. She was overheard on the way out, telling a museum guard that it was an incredible disgrace that the Japanese could get away with not clearly labeling their products these days. She had personally picked up every plane in

*continued on page AMA 7*

## AWARDS AERO-CRAFTS '74 MARCH 23-APRIL 18, 1974

MUSEUM OF THE PHILADELPHIA CIVIC CENTER

| CATEGORY   | RADIO CONTROL | CONTROL LINE   | FREE FLIGHT  | SPONSOR  |
|--|---------------|----------------|--------------|--|
| Largest  | C.P. d'Abreu  | R. Gransback   | R.E. Stab    | Industrial Valley Bank, Philadelphia                                     |
| Smallest   | C.P. d'Abreu  | J.H. VanSant   | W.C. Hannan  | L.M. Cox Manufacturing, Inc.   |
| Pattern  | W.F. McHaff   | R.L. Steck     | W.C. Hannan  | Kraft Systems, Inc. R/C<br>Midwest Products Co. C/L                      |
| Sport  | W. Patterson  | T. Prasol      | H. Haffke    | SIG Manufacturing Co., Inc. C/L & F/F<br>Central Bucks Aero R/C          |
| Soaring  | M. Harris     |                | Y. Mapp      | Kraft Systems, Inc. R/C  |
| Most Unusual   | A.L. Doucette | R.M. Gransback | J.H. VanSant | Carl Goldberg Models, Inc.   |
| Most Outstanding as Picked by Public                   |               |                |              | Camp Solo, Bangor, Maine   |
| Best Paint Finish                                      | H.A. Haffke   | T. Prasol      |              | The Testor Corporation   |
| Best Speed Model                                       | W.F. McHaff   | J.H. VanSant   |              | World Engines R/C  |
| Helicopter   | A.L. Doucette |                |              | Piasacki Aircraft Corporation  |
| WWI  | N.A. Evans    | R. Warner      | W.C. Hannan  | Associated Hobby Manufacturers, Inc.                                     |
| Between Wars   | G.S. Bussman  | A.W. Schaeffer |              | Associated Hobby Manufacturers, Inc.<br>R/C & C/L                        |
| Post WWII  | G. Redmond    | W.C. Koster    |              | Naval Air Engineering Center,<br>Philadelphia                            |
| Overall Best Scale                                     | G.J. Bussman  | W.C. Koster    | ■ Stab       | SIG Manufacturing Co., Inc. R/C<br>Sullivan Products C/L                 |
| Seaplane Amphibian                                     | ■ Zeller      | H. Haffke      |              | Valley Forge Signal Seekers R/C  |
| Didtimer   | W.F. McHaff   |                |              | S.P.A.R.K.S. R/C Club—R/C<br>The Franklin Institute C/L                  |
| Best Fokker 1914 Year                                  | F.P. Stanton  | W.C. Hannan    |              | Parلمان Antique Toy Museum   |
| Best Marine or Navy Aircraft any Year                  | G. Cannon     | A.W. Schaeffer |              | KLM Royal Dutch Airlines   |
| Best Sport RC Plane                                    | C.P. d'Abreu  |                |              | Naval Aviation Museum, Pensacola R/C                                     |
| Best Model Pitts Special In U.S. Aerobatic Team Colors | ■ Katz        |                |              | Sterling Models  |
| Best TWA From Tri-Motor to Tri-Star                    | ■ Bussman     |                |              | Ransome Airlines   |
| Most Outstanding Craftsmanship                         | G. Bussman    | A.W. Schaeffer | W.C. Hannan  | Trans World Airlines   |
| Best Lufthansa Aircraft 1924-1974                      |               |                | W.C. Hannan  | Museum of the Philadelphia Civic<br>Center C/L Bucks County R/C Club R/C |
|  |               |                |              | Lufthansa German Airlines  |
| <b>BOATS</b>   |               |                |              |  |
| Post WWII (Naval Vessel)                               | ■ Mosby       |                |              | Commandant Fourth Naval District   |
| Antique Ship 1900                                      | P.E. Sieg     |                |              | Philadelphia Maritime Museum   |
| Most Outstanding Craftsmanship                         | P.E. Sieg     |                |              | Museum of the Philadelphia Civic<br>Center                               |

Below: John Pierron admires the handsome plaque and finely finished and detailed Grumman F3F which won the Control Line Between Wars category for A.W. Schaeffer (R). Right: Models were artfully displayed—out of reach but close enough for good inspection.





# A Happy Band of Gypsies — U.S.F.F. Championships

## PRESIDENT'S MEMO

A three-day diet of sand, sun, and smiling faces just completed one of the most interesting experiences of my long air modeling life! What a pleasant thing it is in these uncertain times to see a group of dedicated people gather together to "do their thing," to enjoy each other, to help each other, to enjoy simple things in a complex world, and to strive to become better at something without shoving someone else down to do it. To be a part of something this pleasant and handsome will quickly make you forget the sand, the sun, and the miles traveled getting there. The reward is well worth the price.

It is possible that the Free Flighters will be a bit shocked at being referred to as "gypsies," but gypsies are generally thought of as a happy nomadic people who wander through life seeking the new place, the new experience, the new friend, the colorful, the pleasant, and all at the minimum investment of material things, but with the bit of daring gamble that Free Flight always provides.

The place for the happy drama that I enjoyed is generally known simply as "Taft." To nail it down more closely, the flying site for the U.S. Free Flight Championships was about four miles out of Taft, California. Taft is a friendly little community of about 4,300 souls in the oil fields of the desert some 30 miles southwest of Bakersfield. It is in a dry valley between two mountain ranges and is barren except for some sagebrush, some tumbleweeds and a few astonished prairie dogs. The flying site was a piece of the desert loaned by Standard Oil and has a rectangular space of about 50 acres from which the local area AMA'ers had removed the brush. Did I mention that it is dry? It is so dry that to try to spit is a complete waste of time and effort. While we were there the humidity was from 4% to 6%, and the temperature one day got up to 106 degrees. The only way you can send mail is to staple the stamps on the envelope. And the only thing around except just desert is a kitty-litter factory!

In Free Flight there is a challenge that is unique to this type of flying. Everything must be completely pre-adjusted, because once the model leaves the fingertips there is no further means of manual control. All flight paths and stability must have been very carefully predetermined. Unlike Control Line and Radio Control flying, it is not possible to make continual corrections. This demands that Free Flighters thor-



"Gypsies" all, including AMA President John Clemens, left, who has represented AMA at more functions than any other president in history. This photo by Judy Mead from the U.S. Free Flight Championships at Taft shows Johnny chatting with traveling companion Duke Horn, also of Dallas. The contest had 784 event entrants.

oughly learn and apply the science of aerodynamics and do everything very carefully — or the reward is a crash. The demand for knowledge and skill is greater in Free Flight than in any other category. There must be an extremely careful use of available power in these models because of the combined problems of thrust, torque, and necessary stability. The aircraft itself must be a happy compromise between the power-on trim when it is climbing, and the power-off glide portion of the flight when endurance or "stay-up ability" is at a premium. Both of these problems must be solved with a model which cannot be changed at will between the two phases of flight. This can be accomplished only through careful study and experience, and never just by a happy chance.

Efficiency of applying proper aerodynamic principles brings up yet another problem. How do you get 'em back? Since they are not correctable or directable in the air, they have no steering gear. They will land somewhere downwind but in no predictable given place. It used to be that we always chased them on foot. However, modern technology has blessed us with the motorbike, so now it has become both practical and fashionable to chase the models by this mechanical means. That is, if it lands more than a hundred or so feet away. The Taft championships were a great expression of this new retrieving art! I would wager that there were nearly as many motorbikes of one kind or another as there were contestants. Just for example, there were seven motorbikes hauled all the

way from Dallas, Texas. That is roughly 1,500 miles each way. And with all this fantastic motorbike traffic on the field and off, I was astonished at the lack of a serious accident. Dedicated and careful people, these Free Flighters.

If you were not impressed at watching 340 contestants come from as far away as Pennsylvania to a California desert to compete for only trophies and glory, then you had to be impressed when they strapped lights on these same high-performance planes and flew them in competition in the pitch-dark of a desert night! They used a special glo-lamp taped to the plane, and it was awesome to watch. With the air full of these screaming high-flying fireflies, the sight might have cured alcoholism for miles around!

To summarize the meet at Taft, it was several thousand people drawn together by the magic of miniature aeronautics, gaining health from the sun and the outdoors, gaining the warm glow of friendships made from a mutual interest, enjoying a trophy won in competition or the experience and sportsmanship gained by being a non-winner, the gypsy lure of tents and RV vehicles, the lunches of sandwiches, pickles, boiled eggs, Vienna sausages, and a million canned cold drinks, but above all, friendship and fun. Isn't that the goal and purpose of the Academy of Model Aeronautics? The Free Flighters at Taft were expressing it to the fullest!

John E. Clemens  
AMA President



# NEWS bits

## Easy I.D.

A dual-purpose identification system has been instituted at the flying field of the AMA chartered 495th Squadron (Mass.). Members have been issued plastic pin-on holders for their AMA license cards with the intent that they be worn while flying. This procedure, reported Thomas DiMilla (AMA 46079), editor of their newsletter, will necessitate compliance with the club bylaw which states that all flyers at the field must have current AMA licenses, and will also give new members a better chance to get acquainted.

## Maxing Apples and Oranges?

The DC Maxcutters Club has challenged the DCRC Club, both AMA chartered and located in the suburbs of Washington, D.C., to a glider contest. The proposal for three-man teams from each club to participate, the challengers flying in accordance with FF Nordic A-2 rules (three-minute maxes) and DCRC flying with 1973 FAI RC Thermal Soaring rules (10-minute maxes). Each team would fly seven rounds of one hour each, and the score for each flight would be determined by dividing the actual flight duration by the max duration (three-minutes or 10 minutes) and then multiplying by 100. The losers would buy the refreshments. This unusual challenge, reported by Jerry

Barnette (AMA 12554), editor of the Maxcutters' newsletter, *Max Facts*, will make for interesting comparisons should the event materialize. Now let's see, would you put your money on the RC combo of a 984-ft. launch line, the ability to steer into a thermal, and a 10-minute max—or the FF's 164-ft. towline and three-minute max?

## Stars of the Silver Screen

The AMA chartered South Shore RC Club (Mass.) has found a way to encourage attendance at meetings. Sammy Frey (AMA 9407) has been bringing his movies of flying sessions to each meeting, and it seems that the members have found it hard to resist seeing their models being put through their paces. Warren Shadrick (AMA 1526), club president and newsletter editor, also reported that he had named Frey "Official SSRCC Photographer" and asked him to take lots of pictures on the weekends to be shown at meetings throughout the year.

## Sign of the Times

Sue (AMA 87281) and Bob Cryslar (AMA 24548), co-editors of *Flying Times* (Fla.) recently set up a display at a local bank that included models, parts and the inside of a transmitter, all with appro-

priate labels, as well as articles about modeling activity taken from local papers. And all of this in a mere six days from conception!

But Art Johnson (AMA 2374), who contributed to the show, pointed out that though they were quite well prepared in the way of airplanes and other goodies for "instant PR activities," they were missing one vital thing: a good sign saying "Gold Coast Radio Controllers." Their problem was adjusted promptly, but how many other clubs would find themselves in a similar situation?

## Benefit Show a Success

Last year the AMA chartered Long Island Aero-Radio Society (LIARS) held a benefit show for the Association for the Help of Retarded Children (AHRC), and raised \$850, reported William Rosei (AMA 55693) and the AHRC's newsletter, *Lamplighter*. The show included displays of models, both fully built and under construction, plus flying demonstrations.

At the nearly continuous airshow, spectators were impressed with aerial chases and aerobatics, and they also found helpful members of the LIARS who were eager to discuss RC modeling. A popular feature was the chance (for a dollar contribution) to try a hand at model flying via a buddy-box.

The club planned and coordinated the event within the short period of two months. Members, and their families and friends, contributed considerable effort for a worthwhile multiple achievement—showing many people what RC modeling is all about, and raising a good chunk of money for a worthy cause.



Above: Profits from the sale of AMA items (from the Supply & Service Section) at the 1974 Model Expo were donated to the American Cancer Society—for whose benefit the show was staged in April by many southern California clubs at Mile Square. Manning the booth when this photo was taken by Dick Tichenor (L-R) Alex Chisolm, Jan Sakert and Marlene Chisolm. Alex is AMA District X V.P. Right: The Heidelberg (Germany) Aero Modellers Club was just forming when Executive Director John Worth (L-R) visiting his long-time friend, Walt Good, at the time of the annual CIAM meeting late last year—but this group, composed mostly of military men, is now 34 strong. Shown (L-R): Sgt. Joe Hill, CW2 Bob Curtis, Capt. Wayne Murray, Dr. Walter Good, Major Bill Peele, Capt. Curtis Harvey, John Worth, CW2 Bill Brooks. Maj. Peele is commander of Heidelberg's Aviation Unit.

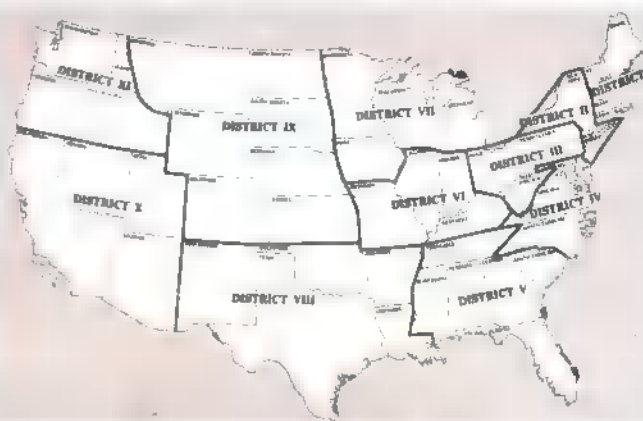




# DIRECTORY OF AMA OFFICERS

## HOW TO USE

Over 150 AMA members serve as volunteers on various committees which determine operating policies of Academy activities—many are listed here. Members are invited to communicate their comments, suggestions, proposals, or complaints by writing to the appropriate committee at any time. Note that the Executive Council and Associate Vice-Presidents represent area interests for general AMA policy matters. Whenever district numbers are shown, write to the nearest address in your area. It is recommended that a copy of any correspondence be sent also to AMA Headquarters.



## EXECUTIVE COUNCIL

**President:** John E. Clemens, Box 64573, Dallas, Texas 75206  
**Sec. Treas.:** Earl Witt, RR 1, Box 309, Chambersburg, Pa 17201  
**Exec. Dir.:** John Worth, AMA HQ, 15th St. NW, Wash. D.C. 20005

**NAA Representative:** Gen. B. Allen, NAA, 15th St. NW, Wash. D.C. 20005

### VICE-PRESIDENTS

- I: Cliff Piper, Highland Ave., Atkinson, N.H. 03811
- II: Josh Titus, 145 Garden Ave., Paramus, N.J. 07652
- III: Ron Morgan, School for Vet. Children, Scotland, Pa. 17254
- IV: John Spalding, 5803 Ellerbe St., Lenham, Md. 20801
- V: James McNeill, 617 South 20 Ave., Birmingham, Ala. 35205
- VI: Glenn Lee, 102 West Mandrake, Batavia, Ill. 60610
- VII: Jack Josatis, 23663 Lawrence, Dearborn, Mich. 48128
- VIII: Murry Frank, 2933 Blankenship, Wichita, Kan. 67208
- IX: Alan Chilton, 1401A South Hydraulic St., Wichita, Kan. 67211
- X: Alex M. Chasom, 1100 West Shaw, Fresno, California 93705
- XI: Homer L. Smith, 1417 NW 191st St., Seattle, Wash. 98177

## GENERAL COUNSEL

Jeremiah Courtney, c/o AMA HQ, 806 15th St. NW, Wash. D.C. 20005

## ASSOCIATE VICE-PRESIDENTS

- I: John C. Papageorge, 104 Rocky Hill Rd., Hadley, Mass. 01035
- Charles Leary, 58 Colonial Village, Amherst, Mass. 01002
- II: John Dreesch, 86-17 108th St., Richmond Hill, N.Y. 11418
- Dave Rounsaville, RD 2, Box 109, Milford, N.J. 08848
- Edward Kuck, 494 Pellett Rd., Webster, N.Y. 14581
- III: Ralph Penneth Wherry, Dr. RD #1, Sawicklay, Pa. 15143
- Albert Seidowski, 7301 Grant Blvd., Cleveland, Ohio 44130
- Harry Pye, 410-12 W. Johnson Hwy., Apt. A 108, Norristown, Pa. 19401
- IV: Thomas Baker, 408 Philer Rd., Kings Mountain, N.C. 28086
- Chiff Telford, 8812 Rayburn Road, Baltimore, Md. 20034
- M. L. Woolard, 301 Haledon Road, Chesapeake, Va. 23320
- V: Tom McLaughlin, 4140 Fern Ct., Pine Glades, Pensacola, Fla. 32603
- George Perryman, 970 Concord Road S.E., Smyrna, Ga. 30080
- Jim Whitley, 1805 Woodland St., S.E., Decatur, Alabama 35601
- Rhett Miller, 3039 Lakeshore Dr., Tallahassee, Fla. 32303
- VI: Robert Vojislavik, 7819 Chestnut Ave., Woodridge, Ill. 60515
- Edwin W. Paul, 1640 Maywick, Lexington, Kentucky 40504
- VII: Frank Morrissey, 14100 W. Park Ave., New Berlin, Wisc. 53151
- Hardy Brodersen, 4729 Walnut Lake, Birmingham, Mich. 48010
- VIII: Bud Tenny, Box 545, Richardson, Texas 75080
- Ned Barnes, 523 N. Lebanon, Sulphur, La. 70683
- IX: Simon Drees, Rt. #1, Box 48, Broadview, Montana 59015
- John Kelly, 7020 E. Colfax, Denver, Colorado 80220
- Jim Mowrey, #2, Box, Kinsley, Kansas 67547
- X: Robert Barnes, 98-1080 Komo Ma Dr., Aiea, Hawaii 96801
- John Pond, 4135 Avanti Drive, San Diego, California 92117
- Ed Hagarin, 8331 E. 3rd St., Tucson, Arizona 85710
- Steve Garaghty, 2858 Pinecrest Ct., San Jose, Calif. 95121
- Jim Scarborough, Box 393, Lawndale, California 90260
- XI: Dick Carson, 3029 Hoffman W., Spokane, Wash. 99205
- 99206
- At Culver, 231 Fairbanks, Pocatello, Idaho 83201
- Robert M. Stalick, 1120 Shady Lane, Albany, Oregon 97321

Correspondence for the committees and representatives which follow should be addressed to the proper committee or individual and sent c/o AMA HQ, 806 Fifteenth St., N.W., Washington, D.C. HQ will send to proper individual and/or committee.

## NATIONALS EXECUTIVE COMMITTEE

Kemp Bunting, Munster, Ind. John Clemens, Has Tex. Ron Morgan, Scotland, Pa. Pete Solich, Chicago, Ill. Earl Witt, Chambersburg, Pa. John Worth, Washington, D.C. Assoc. Dick Carson, Spokane, Wash. Jan Sakert, Fountain Valley, Calif. Bob Vojislavik, Woodridge, Ill.

## CONTEST COORDINATORS

- I: Paul Penney, 8 Charlotte Drive, Andover, Mass. 01810
- II: Gil Rifkin, 18 Carmen Dr., Nantux, N.Y. 10954
- III: Kenneth Reber, 702 Hillside Ave., Hamburg, Pa. 15926 (East)
- IV: Weisenbach, W 146th St., Cleveland, Ohio 44135 (West)
- RC J. Slater, 809 Forest, Lancaster, Ohio 43130 (West)
- Warren Sanders, 9735 52nd Ave., College Park, Md. 20741
- RC Lawrence, 12538 Woodstock, Upper Marlboro, Md. 20870
- V: James Perdue, Kingston Circle RFD, Athens, Tenn. 37303
- RC Frank Schwartz, 2400 West End Ave., Nashville, Tenn. 37203
- VI: Pete Solich, 62nd Pl., Chicago, Ill. 60629
- RC Horace Bain, 525 Weidner Rd., Elko Grove, Ill.
- VII: John Evert, 421 Walnut, Apple Valley, Minn. 55124 (West)
- Hartung, 14759 Kilbourne, Detroit, Mich. 48213 (East)
- VIII: S. Frank, 2933 Blankenship, Wichita, Falls, Texas 76306
- RC Larry Stenfield, 1617 Laguna Ln., Ft. Worth, Texas 76134
- IX: James Finley, 6540 E., Wichita, Kansas 67208
- RC Arnett, 216 Broadway, Great Bend, Kansas 67530
- X: D. Farnsworth, 2600 Country Ln., Visalia, Calif. 93277 (North)
- Lee Polansky, 865 W. Huntington-1, Arcadia, California 91006 (South)
- XI: Don, 32nd Ave., S.W., Seattle, Wash. 98146
- RC Donald Miller, South, St. Kent, Wash. 98031

## CONTEST BOARD COORDINATOR

Don Lindley, 301 East Elizabeth Dr., Crown Point, Ind. 46307

**Bold type below indicates chairman of Contest**

## CONTROL LINE CONTEST BOARD

- I: John Scott, Jr., 265 Winches Rd., Bristol, Conn. 06010
- II: **Jan Paillet**, 30 Emerson Rd., Brookville, Glen Head, N.Y. 11545
- III: Land Jackson, 523 Meadowbrook St., Davids, Pa. 19087
- IV: William Perdue, 1201 Surrey Dr., Greensboro, N.C. 27408
- V: Dick Hall, 604 Box, Athens, Alabama 35611
- Gary Frost, 22 Glynn Drive, Florissant, Missouri 63031
- VII: Arthur Adamson, 22454 Fairfax, Taylor, Michigan 48180
- VIII: B. Davis, 608 Green River Trail, Fort Worth, Texas 76103
- Michael Tallman, 3014 Exchange, Wichita, Kansas 67217
- X: P. Brandt, 5817, Ironwood, Palos Verdes Peninsula, Calif. 90274
- XI: Dan Rutherford, 920 S.E. #1, Wash. 98011

## FREE FLIGHT CONTEST BOARD

- I: Henry Struck, RFD #2, Hamburg, Old Lyme, Connecticut 06371
- II: Carol Allen, 2 Arizona Pl., Huntington Sta., N.Y. 11748

## JUNIOR COMMITTEE

Ed Abram, Oueguaga, N.Y.

## FAI CIAM REPRESENTATIVES

Ron Chidgey, RC Aerobatics, Clif Telford, RC Pylon Racing, Lord Jackson, CL, Dave Linstrum, FF, Claude McCullough, Scale

## RC FREQUENCY COMMITTEE

D. R. Kirk, Kensington, Md. Walter Good, Bethesda, Md. Richard Jenson, Waukegan, Ill. Mass. Hugh Stock, Saratoga, Calif. C. T. Williams, McLean, Va.

IV: **Joe Boyle, Jr.**, 219 Shenandoah Rd., Hampton, Va. 23361

- V: Bill Nighbors, 211 W. Newberry St., Chattanooga, Tenn. 37415
- VI: James Gremel, 8818 Jo Court, Berkeley, Missouri, 63134
- VII: P. Klineworth Jr., 715 Rutgers Rd., Rochester, Mich. 48063
- VIII: Buzz Averill, 9117 LaBarranca N.E., Albuquerque, N.M. 87111
- IX: Edward Collins, 4318 E. Utah Place, Denver, Colo. 80222
- X: Mel Schmidt, 1140 Sturbridge, Hebra, California 90831
- XI: Albert Grell, Route #1, Box 165, Tangent, Oregon 97386

## RADIO CONTROL CONTEST BOARD

- I: Harvey Thomas, 889 Brigham St., Northboro, Mass. 01532
- II: George, 11 Maple Ln., Hyde Park, New York 12538
- III: George Kane, 550 Andrew Dr., Southampton, Pa. 18886
- IV: George Hill, 4106 Breezeview Ln., Annandale, Va. 22003
- V: Don Coleman, 527 Pecan St., Box 438, Citronelle, Ala. 36522
- Bud Atkinson, 734 N. 8th St., Teri, Blue Spgs., Mo. 64106
- VII: Peter Waters, 31219 Kendall, Livonia, Mich. 48154
- VIII: David Hyde, 8823 Boundbrook Ct., Dallas, Tex. 75321
- IX: Loren Tregelles, 3003 S. Everett, Wichita, Kan. 67217
- X: **Bill Northrop**, 1105 Spurgeon, Santa Ana, Calif. 92701
- XI: Ralph Brooke, 3431 S. 194th St., Seattle, Wash. 98188

## SCALE CONTEST BOARD

- I: Richard Sherman, 408 River Rd., Tewksbury, Mass. 01876
- II: Perretti, Box 166, Lincolnade, New York 10540
- III: Edward Wesser, 1521 Summit St., McKeesport, Pa. 15130
- IV: Hurst Bowers, 1649 Birch Rd., McLean, Virginia 22101
- V: Lee Webster, 1000 Sycamore Cir., Manchester, Tenn. 37355
- VI: Frank Beatty, 2556 Pontoon Rd., Granite City, Ill. 62040
- VII: **Claude McCullough**, Box 40, Montezuma, Iowa 50171
- VIII: John Casburn, 6508 Normandy, Fort Worth, Tex. 76112
- IX: Dean Copeland, 7817 Seward St., Omaha, Nebraska 68114
- Russ Barreira, 139 B St., San Marcos, Calif. 92069
- X: Earle Moorhead, 275 S. View Place S., Salem, Ore. 97302

## SOARING ADVISORY COUNCIL

- I: Richard Jenson, 6 Pine St., Waukegan, Ill. 60091
- II: Rifkin, 18 Carmen Drive, Nantux, N.Y. 10954
- III: Fred Collins, 29 Stewart Ave., Pittsburgh, Pa. 15227
- IV: **Carl Maroney**, P.O. Box 170, Kensington, Md.
- V: Chuck Anderson, Route 4, Box 154, Tullahoma, Tenn. 37388
- VI: Liptak, 325 O'Neal St., Joliet, Illinois 60438
- VII: Earl Peil, 907 Medford Ct., Rochester, Mich. 48163
- VIII: Dale Nutter, 2498 E. 49th, Tulsa, Oklahoma 74105
- Jim Simpson, 2636 Forbes, Omaha, Nebraska 68123
- X: John Donelson, 16162 Little Dr., Huntington Beach, Cal. 92649
- XI: Donald Toepel, 1040 N. 174th St., Seattle, Wash. 98148

## COMMUNICATE!

Your officers can't know your thoughts unless you tell them.



# Ed Manulkin

## Profile of a Life Member

by Jim McNeill

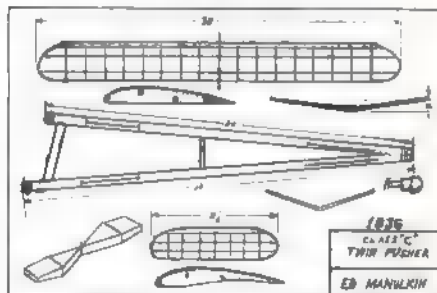
Once upon a time a 9 year old kid walked into posh Philadelphia department store, went straight to the toy counter, demanded to see the best model airplane kit they had. The year was 1929. The store—Gimbel Brothers. The kit? A toy Wanner Baby R.O.G. priced reasonably at 50¢, and by the way the kid didn't have near the necessary funds, so he had to go back home and skimp and save 3 more weeks.

The little boy was Edward Manulkin, destined to become soon after; a superb free flyer, a contest winner all over the East and Midwest, one of the original members of AMA, and eventually; a patron and pillar of our fine Academy, and the founder and president of one of America's most respected model airplane kit manufacturing companies.

Ed took the toy R.O.G. home, spent 3 months coaxing a 30 second flight out of it, earned his Gimbel's Wipacs Club "Grease Monkey" pin. He soon joined the Philadelphia MAA, a then quite prestigious club holding maybe 90% of all national records. Schooled by good modelers, slowly learning his model aerodynamics, Ed gradually became a skillful designer, builder, and flyer of indoor rubber, outdoor rubber tractors and pushers, and Brown Junior powered gassies.

Attending contests from the Detroit Nats to Eastern Seaboard meets, he was a contestant to be reckoned with and feared. He flew against all the greats of his day—Frank Ehling, Maxwell Bassett, Matty Sullivan etc. and earned his share of medals, merchandise, and glory.

The twin pusher pictured was printed in Frank Zaic's 1937 Year Book, page 91, featuring 2 original advancements to aid endurance. Staggered booms for larger props, enclosed rubber motors in rolled fuselages to cut drag.



After serving honorably in World War II, Ed worked briefly as Sales Manager for B. Paul Distributors. Discontent working for someone else, anxious to get back to the models he understood and loved so well, he quit his job cold one

afternoon, went down in his basement, and slaving long hours started the Sterling Model Co. Today he is still at it, still puts in 14 hours a day.

Ed's company has prospered and he has shared his success with AMA. The much sought after Sterling Award, given each year at the Nats for the best scale model to make an official flight, is his baby, and he has given the Academy a hundred dollar check each year to go with it. He also gave AMA a thousand dollars when they needed money, and became a life mem-

ber—before special numbers were ever heard of.

Look in the pages of any model magazine today for the colorful Sterling ads. See the little scale airplane kits for sale. Kits fashioned by a premier free flight pioneer who got on your wave length a long long time ago and never got off, and who wants YOUR kid to see something more elegant than a toy R.O.G. the first time he walks into a department store or a hobby shop and demands to see the best they got!!!



Above: On the left is how Ed Manulkin, Life member No. L-7, looks today; in 1946, fresh out of a tour in the U.S. Army, he was flying the FF at right called the "Super C"—lost for good at a meet in West Chester, Pa., after a 15-mile chase. Below: An earlier photo taken by John Sussaywich shows Ed in an apparently humorous pose, kneeling, but he didn't give the punch line. Some great modelers are shown (L-R): Merrick (Pete) Andrews of current Indoor fame; Matthew Kania and wife, Chris; Jessie Bieberman, school teacher and sponsor of their club at the time; Jean Sussaywich, wife of the photographer who runs a hobby shop in Philadelphia; Martin Nemerofsky, an excellent modeler who was killed in the Battle of the Bulge in WW II; Ervin Leshner, who is now a private engineering consultant after many years with the Philco Corp.







## Aero-Crafts

(continued from page AMA 1)

the show and looked at every square inch of it to find the "Made in Japan" tag.

Along with all the AMA members who came out of the bushes to enter planes in the show and thereby admit their identity, another group deserves accolades from every do-it, glue-it, flew-it enthusiast across the land. These are the members of the Delaware Valley area clubs who pitched in and helped with everything from aiding the august body of judges (Paul Garber, historian emeritus of the Smithsonian Institution, Frank Piasecki, president of Piasecki Aircraft Corp., and Paul Heintz, aviation writer for the *Philadelphia Bulletin*) to dropping everything at work to deliver planes to the museum for special publicity photo sessions prior to the show, and showing up each Saturday to sit at a workbench in the museum and show the visiting public how the planes on display were really made by hand.

Also pitching in to aid the effort of showing the public what the Radio Control planes were all about, were people like Bob Elliott of EK Logictrol. Bob, a bit nervous, turned over his "Little Red Friend Maker" for the entire time of the show. LRFM is a mock-up RC demo plane with all the goodies out in the open where even the dullest fellows can see them in action and understand the mystery of RC. One quick exposure to the LRFM and its transmitter had a lot of visitors asking the shortest routing to a hobby shop.

Ed Manulkin of Sterling Models donated a "Fledgling" kit that members of the Valley Forge Signal Seekers tumbled out of bed early of a Saturday morning to drive in to Philadelphia and assemble for the visiting multitudes. (This club deserves a Medal of Honor for all they've done to aid the promotion of modeling at all levels in the past years!)

Bernie Paul of AHM, upon hearing of the purpose of the show, instantly donated his prize possession—a closed circuit TV system. This little gem sat in an alcove in the show area and gave off happy pictures and sounds of models in action throughout the month-long tribute to handmade flying machines.

Meanwhile people like Jack Salmon and Bill Risko of the AMA Show Team went off to train Philadelphia policemen in the art of building and flying Delta Darts. No effort to avoid future parking tickets, but a part of the area-wide promotion of modeling as a worthwhile and wholesome activity for all concerned . . . all a part of the museum effort to show modeling to the general public. Then, Police Athletic League contests were held throughout the area for over 20,000 youngsters in the PAL program. (Of this number, 19,972 kids asked why the planes were not ready-

made in Japan. Of all participating, 19,972 later unanimously agreed that they were glad that they had to make the things themselves. The other 28 were from modeling families and tested out as disdainful of anything made by someone else, here or abroad.)

Other flowers, if we had them to hand out, should go to the executive director of The Museum of The Philadelphia Civic Center, John Pierron. Mr. Pierron showed his mettle as executive by believing the initial tales told him by Mr. Nobel as to the value of such a show, and by opening the museum to accommodate it.

To Mr. Nobel, if we had one to hand out, would go the AMA PR Benefactor's

| CONTEST |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|
|         | 1  | 2  | 3  | 4  |    |    |
| 7       | 8  | 9  |    |    |    | 13 |
| 14      | 15 |    | 18 | 19 | 20 |    |
|         |    |    | 24 | 25 | 26 | 27 |
| 29      | 30 | 31 |    |    |    |    |

### Official Sanctioned Contests of the Academy of Model Aeronautics

Note: For quick response and as a favor to those staging, administering and directing the contest, be certain to send stamped, self-addressed envelope along with your request to the listed Contest Director (CD) for additional information.

- Aug. 3-4—Freeland, Mich. (A) SVRCC 2nd Annual RC Scale Model Air Show Site 2220 Lane R. C. Costes CD. 4016 E. St. Andrews, Midland Mich. Sponsor Saginaw Valley RC.
- Aug. 3-4—Salina, Kans. (AA) 3rd Annual RC Meet Site Municipal Airport L. Genke CD. 215 Main Delphos Kans. 67436 Sponsor Mid America RC Society.
- Aug. 4—Jamestown, N.Y. Flying Rebels Fly for Fun Site Blanchard Road E. Ecklund CD. 75 Benson. Jamestown N.Y. 14701 Sponsor Flying Rebels.
- Aug. 4—Lockport, N.Y. (AA) Annual Western NY RC Jambo. Site Lockport R. Brock CD. 562 Orchard Pl. N. Tonawanda, NY 14120 Sponsor Niagara County RC MAC, Inc.
- Aug. 4—Norfolk, Va. (AA) Fall CL Annual Site Norfolk E. Regan CD. 4200 Mayflower Rd. Norfolk Va. 23508 Sponsor Norfolk Aeromodellers.
- Aug. 4—Livermore, Calif. (B) SACRC Picnic Scale Meet Site Hummingbird Haven. Franco CD. Mauna Loa Pk. Dr. Fremont CA 94538 Sponsor Southern Alameda County Radio Controllers.
- Aug. 4—Rancho Cordova, Calif. (AA) Northern Calif. FF Council Monthly Meet Site Wagel K. Oliver CD. 2213 El Centro Cir. Rancho Cordova Calif. 95670 Sponsor Capitol Condors.
- Aug. 4—Bloomfield, Ohio TCR CM Fun Fly Site Buick Field N. Flavel CD. 278 Clifton Dr. Warren, Ohio Sponsor Trumbull County RC Modelers.
- Aug. 4—Rochester, Minn. (A) RAMS 1.4 Midget Air Races Site Rochester H. Wayne CD. 1706 7th St. Rochester Minn. 55901 Sponsor Rochester Aero Model Society.
- Aug. 5-15—Lake Charles, La. (AAAA) National Model Airplane Championships for CL RC and Indoor events. High ceiling indoor events at Spring Tex. Aug. 4-5 For entry form and information send request with pre-addressed and stamped envelope to AMA HQ. 808 Fifteenth St. N.W. Washington D.C. 20005.
- Aug. 7-11—Sioux Falls, S.D. Sioux Empire Fair Fun Fly Site Fairgrounds J. Donovan CD. 1409 Thompson Dr. Sioux Falls, S.D. 57105 Sponsor Flying Eagles MC, Inc.
- Aug. 10—Hamburg, N.Y. Fun Fly Meet Site Hamburg K. Landefeld CD. 11151 Jamison Rd. E. Aurora NY 14052 Sponsor RC Aircrafters.
- Aug. 10-11—Great Falls, Mont. (AA) 6th Annual Fun Fly Site Great Falls R. Jones CD. 1425 Ave. S. Great Falls Mont. 59401 Sponsor Big Sky RC Modelers.
- Aug. 10-11—Dallas, Tex. (A) Dallas League of Silent Flight 2nd Annual Thermal Soaring Gapple Site Mesquite Field T. Williams CD. Box 1012 Irving Tex. Sponsor Dallas League of Silent Flight.
- Aug. 10-11—Wyandotte, Mich. ICRC Annual Contest Site Wyandotte E. Lynn CD. 3187 - 22nd Wyandotte, Mich. 48192 Sponsor City Club, Inc.
- Aug. 10-11—N. Cover d'Alene, Id. (A) Henley Aerodrome RC Sport Scale Rally Site Henley Aerodrome G. Horstman CD. E11223 LaCrosse, Spokane, Wash. Sponsor Barons Model Club.

Award, an award that should be yearly given to those outside the hobby who look in and see it as a great American pastime and appreciate it fully . . . ingenuity, finished with love and care—the satisfaction of craftsmanship.

A bit of upper East Coast activity? Not at all! It was a first for others to follow in their areas . . . modelers and museums alike. The groundwork was laid in Aero-Crafts '74. Museum bulletins and newsletters will carry it as a first . . . it's up to modelers to get out of their hiding places and carry the concept further. Thanks to Mr. Nobel (and Mr. Da Vinci), other museums will possibly be very willing to listen.

Aug. 10-11—Minneapolis, Minn. (AA) Twin City Radio Controllers Annual Contest Site Minneapolis L. Neuman CD. 4916 30th Ave. S. Minneapolis Minn. 55417 Sponsor Twin City Radio Controllers.

Aug. 10-11—Great Falls, Mont. (AA) 6th Annual Fun Fly Site: Great Falls R. Jones CD. 1425-80th Ave. D. Great Falls, Mont. 59401 Sponsor Big Sky RC Modelers.

Aug. 11—Hadley, Mass. (A) Sport Scale & Fun Fly Site: Hampshire Co. RCers Field. Sparrow CD. 418 St. Agawan, Mass. 01001 Sponsor Hampshire County Radio Controllers.

Aug. 11—Cowley, Wyoming (AA) Cowley RC Glider Meet Site Cowley W. Higgins CD. 305 S. Day, Powell Wyoming 82435 Sponsor Wyoming Sagebrush Hoppers.

Aug. 11—Hampstead, NY (A) Maroke 1/4 Midget Races Site Hampstead M. Carver CD. 3511 Westminster Rd., Oceanside, NY 11672 Sponsor Maroke RC Club.

Aug. 11—Hanford, Calif. (A) Sky Kings Free Flight Meet Site Manzanillo Ranch E. Souza CD. 514 A So. Bridge, Visalia, Calif. 93277 Sponsor Sky Kings.

Aug. 17—Moundsville, W. Va. (A) Valley F.O.'s Annual RC Contest Site Fallen Timber Lane A. Blair, Jr. CD. Rte. 2, Box 383, Moundsville, W. Va. 26041 Sponsor Valley F.O.'s M.A.C.

Aug. 17-18—Cedar Rapids, Iowa (AA) Skyhawks 6th RC Meet Site Semmole Valley Park J. Finn CD. Hampden Dr. NE, Cedar Rapids, Iowa 52402.

Aug. 17-18—W. Suffield, Conn. (AA) New England RC Pattern Championships Site NCRCR Field S. Grawold CD. Cottage St., New Hartford Conn. 08057 Sponsor Northern Conn. RC Club.

Aug. 17-18—Lakewood, N.J. World War II Scramble for RC Site Lakewood D. Meier CD. 81A North Place, Flemington, NJ 08822.

Aug. 17-18—Birmingham, Ala. (AA) First Annual BAMA Flyers Contest Site Birmingham F. Newman CD. Rt. 12, Box 2007, Birmingham Ala. 35215 Sponsor Birmingham Aero Modelers Assoc.

Aug. 17-18—Orlville, Va. (AA) R.A.R.C. Annual Pattern/Scale Meet Site Club Field. Robeson CD. 327 Selden Rd. Newport News Va. 23608 Sponsor Richmond Area RC Inc.

Aug. 17-18—Tullahoma, Tenn. (AA) 15th Annual Coffee Air-lovers FF Meet Site Tullahoma. Cleveland CD. 708 County Club Dr. Tullahoma Tenn. 37388 Sponsor Coffee Air-lovers.

Aug. 18—St. Louis, Mo. (AA) Sixteenth Annual CL Midwestern Championships Site Buder Park A. Scheper CD. 4208 Virginia Ave. St. Louis Mo. 63111 Sponsor St. Louis Yellow Jackets Inc.

Aug. 18—Johnsville, Pa. (AA) 27th Annual Eastern States FF & CL Championships Site Westminster N.A.F. R. Leishman CD. 167 Goldenridge Dr. Levittown, Penna. 19057.

Aug. 18—Southern Calif. (A) San Fernando Valley Silent Flyers Bi-Monthly Meet For Aerobatics Site announced B. Jones CD. 7300 Farrallone Ave. Canoga Park Calif. Sponsor San Fernando Valley Silent Flyers.

Aug. 18—Olean, N.Y. (AA) United Pylon Racing Association Meet Site Olean B. Brown CD. 1255 High St. Bradford, Pa. 16701.

Aug. 18—Ohio (AA) NOFA-August FF Meet Site Panding J. Robinson CD. 195 Fairfield Rd. Avon Lake Ohio 44012 Sponsor Northern Ohio FF Association.

Aug. 18—Fresno, Calif. (A) FGMAC Monthly FF Meet Site Fresno F. Ginder Jr. CD. 5740 E. Ashlan Fresno, Calif. 93727 Sponsor Fresno Gas Model Club.

Aug. 18—Cascadia, Mich. (A) Pylon Racing Meet Site RCCD Field H. Martin CD. 2124 Common. Warren Mich. 48092 Sponsor Club of Detroit.

Aug. 18—Colorado Springs, Colo. (AA) Pikes Peak Pattern & Sport Scale Meet Site Colorado Springs J. Cole CD. 2007 Warwick Ln. Colorado Springs, Colo. 80909 Sponsor Pikes Peak RC Club.

Aug. 18—Albany, Ore. (AA) 1974 All Northwest FF Championships Site Parkers Field B. Stalick CD. 1120 Shady Ln. Albany Ore. 97321 Sponsor Willamette Modelers Club, Inc.

Aug. 18—Dallas, Tex. (AA) 4th Annual FF Pylon Bash Picnic Site Dallas. Nelson CD. 2908 Lanette, Arlington, Tex. 76010 Sponsor Dallas Cliff Cloud Climbers.

Aug. 18—Lapel, Ind. (A) 1st Annual Lapel RC Fun Fly Site Club Field. Watson, Jr. CD. RR#3, Box 200G Anderson, Ind. 46011 Sponsor Lapel RC Flying Modelers.

Aug. 18—Denver, Colo. (A) MMM Monthly FF Meet Site Denver W. Baldrige CD. 1484 S. Lafayette St. Denver, Colo. 80210 Sponsor Magnificent Mountain Men.

Aug. 18—Brighton, Wisc. (AA) Bong Eagles FF Contest Site Bong Field G. Wisniewski CD. 1535 E. Tripp Ct. Milwaukee Wisc. 53207 Sponsor Bong Eagles.



**Aug. 24—Omaha.** (AI) M.A.S.S. Monthly Soaring Meet. Site: The Grass Pad J. Simpson CD 2636 Forbes Omaha Neb 68123

**Aug. 24—Cudahy, Wis.** (AI) 2nd Midsummer Soaring Site: Warrington Park. (AI) Forney CD 220 7th St. Racine Wis 53403 Sponsor: Milwaukee Flying Electronics, Inc.

**Aug. 24-25—Pearl City, HI.** (AA) 2nd Annual Hawaii UC Championships Site: Pearl Harbor Park S. Clough CD 318-B Millert St. APO San Francisco, Calif 96557 Sponsor: Hawaii CL Club

**Aug. 24-25—St. Charles, Mo.** (AA) McDonnell RC Seventeenth Annual Meet Site: McDonnell Douglas Electronics W. Feldmeyer CD 2955 Clearview Dr. Normandy, Mo 63121 Sponsor: McDonnell RC Club

**Aug. 24-25—Anderson, SC.** (AA) South Carolina State Championships for RC Site: Anderson SC Airport L. Nash CD 403 Lavista Place, Pendleton. 29607 Sponsor: Tri County RC Flyers

**Aug. 24-25—Cleveland, Ohio.** (AA) Cleveland Junior CL Air Races Site: Cleveland Hopkins Int'l Flying Field R. Sargent CD 1694 Wright Ave. Rocky River, Ohio 44116

**Aug. 24-25—Orange, Mass.** (AI) 21st Annual NERCOM Contest Site: Orange Airport W. Army CD 16 Rhodes. 01801 Sponsor: New England RC Club

**Aug. 24-25—Salt Lake City, Ut.** (AI) Lucky 13th Annual RC Summer Festival Site: Saltair Model Port D. Roper CD 3914 W 4955 S. Salt Lake City, Ut 84118

**Aug. 24-25—Omaha, Neb.** (AA) Omahawks Annual RC Meet Site: Omahawks Field R. Mass CD 11720 Cedar Omaha, Neb 68144

**Aug. 24-25—Fountain Valley, Calif.** (B) 1974 LSF Tournament Site: Mile Square B. Henon CD 1042 Embury St. Pacific Palisades, Calif 90272 Sponsor: San Fernando Valley Silent Flyers

**Aug. 24-25—W. Suffield, Conn.** (AI) Nor East Air Races 74 Site: NCRCC Field B. Williams CD 347 Southwick Rd. Westfield Mass 01085 Sponsor: Northern Connecticut RC Club Inc

**Aug. 25—Lakehurst, N.J.** (AI) Dist 11 RC Pattern Championships Site: Lakehurst NAS J. Friend CD 62 Joysan Terr. Freehold N.J. 07728 Sponsor: Monmouth M.A.B.

**Aug. 25—LaSalle, Mich.** (AI) Hobby Stop Silver Cup 1-4 Midger Meet Site: Toledo Weak Signals Field B. Mallory CD 4488 River Rd. Toledo, Ohio 43614 Sponsor: Weak Signals Flying Tigers

**Aug. 25—Chardon, Ohio.** (AI) CRC 3rd Annual Glider Meet Site: Chardon F. Shepley CD 36981 Lakeshore Blvd. Eastlake, Ohio 44094

**Aug. 25—Hamburg, N.Y.** Flying Knights 6th RC Fun Fly Site: Hamburg Recreation Center N. McCormack CD 8709 Hillcrest Dr. Boston N.Y. 14025 Sponsor: Flying Knights of Hamburg N.Y. Inc

**Aug. 25—Danville, Mich.** C.A.R.D. of Lansing Mich. RC Fun Fly Site: Danville. (AI) Bailey CD 800 Eugene St. Mason Mich 48854 Sponsor: Capital Area Radio Squadron

**Aug. 25—Queens, N.Y.** (AA) Association of MAC Gress N.Y. CL Meet Site: Flushing Meadow Park B. Bianchi CD 260 S Broadway Yonkers N.Y. 10706

**Aug. 25—Elk Grove Village, Ill.** (AI) CPC Pylon Race Site: Chicagoand Field B. Browning CD 18 Linden Ave. Wheeling, Ill 60090 Sponsor: Chicago Pylon Club

**Aug. 25—Rice Lake, Wis.** (AI) Hawk 2nd Annual Summer Contest Site: Barron Co. Campus F. Kelley CD 20 Phogs Ave. Rice Lake, Wis 54858 Sponsor: Hardscrabble Hawks KAC

**Aug. 25—Brookport, N.Y.** (AI) Alvin R. Grant Sailplane Site: Brookport. (AI) Walder CD 27 Folkside Ln. Fairport N.Y. 14450 Sponsor: RC Club of Rochester

**Aug. 25—Ft. Wayne, Ind.** (AI) First Annual Stand-off Scale Jamboree Site: Ft. Wayne J. Spallone CD 7116 Penhook Dr. Ft. Wayne, Ind 46819 Sponsor: Fort Wayne Flying Circles

**Aug. 25—Lincoln, Neb.** (AA) Aero Design 7th Annual UC Contest Site: Humans Society Park D. Reiber CD 8 Rt. 6 Lincoln, Neb 68506

**Aug. 25—Framingham, Mass.** (AI) Charles River Glider Contest Site: Calahan State Park J. Peghiny CD 2202 Comm. Ave. Auburndale Mass 02186 Sponsor: Charles River Radio Controllers

**Aug. 25—Honolulu, HI.** (BI) Hawaii RC Pattern Bash Site: Ford Island B. King CD 4138 1 Keanu St. Honolulu, HI 96816 Sponsor: Hawaii RC Club

**Aug. 25—Ossau, Minn.** (AA) Annual CL Fall Contest Site: N. Henn Comm. College T. Beizer CD 3124 Columbus Ave. Minneapolis Minn 55407 Sponsor: Minneapolis Piston Poppers

**Aug. 25—Kansas City, Mo.** (AI) Sky Devils CL Meet Site: Swops Park J. Holiday CD 1210 S. 38th St. Kansas City, Mo 64106 Sponsor: Sky Devils Mac of KC Mo

**Aug. 31-Sept. 1—Jacksonville, Fla.** (AA) District Five Championships Site: Jacksonville A. Wright CD 5882 Alpha Ave. Jacksonville Fla 32205 Sponsor: RC Club of Jacksonville

**Aug. 31-Sept. 1—Anderson, Ind.** (AA) 3rd Annual Mid Western RC Championships Site: Anderson Municipal Airport S. Darlington CD 3402 E. 8th St. Anderson Ind 46012 Sponsor: Madison County RC Flyers

**Aug. 31-Sept. 1—St. Paul, Minn.** (AI) 3rd Annual Pylon & Scale Contest Site: St. Paul RC R. LaBrash CD 2590 Colansay St. Roseville, Minn 55113 Sponsor: St. Paul Radio Controllers, Inc.

**Aug. 31-Sept. 1—Orwell, Ohio.** (AA) Third Annual FF Meet Site: Orwell L. Campbell CD 9230 Independence Parma Hgts. Ohio 44130 Sponsor: Cleveland FF Society

**Aug. 31-Sept. 1—Billings, Mont.** (AA) 8th Annual Montana RC Championships Site: F.M. Flying Field. (AI) Wilson CD 3225 Philip Billings Mont 59101 Sponsor: Billings Flying Mustangs

**Sept. 1—Blaine, Minn.** (AA) Annual August FF Meet Site: Hentges Sod Farm L. Stockstad CD 2648 Carlson Dr. Coon Rapids Minn 55433 Sponsor: Mpls Model Air Club

**Sept. 1—Ft. Lauderdale, Fla.** (AI) Ft. Lauderdale Ugly Stick Race Site: 16001 W. S.R. 84 W. Williamson CD 8300 NW 38th Coral Springs Fla 33065 Sponsor: Broward County RC Assoc

**Sept. 1—Glenview, Ill.** (AA) Scalemasters 6th Annual Scale Rally Site: Glenview NAS C. Macomber CD 922 Oak St. Winnetka Ill 60093 Sponsor: Chicago Scalemasters

**Sept. 1—Montezuma, Iowa.** (AI) Sig CL Contest Site: Sig Field H. Pohlmann CD 401 S. Front St. Montezuma Iowa 50171

**Sept. 1—LaSalle, Mich.** Seasons Helicopter Championships Site: Weak Signals Field. (AI) Keats CD 2014 Atlas, Troy Mich 48084 Sponsor: Mich. Whitebirds RC Helicopter Club

**Sept. 1-2—Pasadena, Tex.** 3rd Annual Gulf Coast RC Fun Fly Site: Red Baron Flying Field W. Beckham CD 806 Grove Ave. Deer Park, Tex 77536 Sponsor: Gulf Coast RC Club

**Sept. 2—Fort Meade, Md.** (BI) 1st Annual RC Meade Modelers Club Championships Site: Range #5 W. Culo CD 575 Rita Dr. Odenton, Md 21113 Sponsor: Fort Meade Modelers

**Sept. 2—Jacksonville, Fla.** Second Annual "Snoopy's Fun Fly Decathlon" Site: Jacksonville C. Belcher CD PO Box 6176 Jacksonville Fla 32205 Sponsor: Gateway RC Club Inc

**Sept. 7-8—Fiskdale, Mass.** (AI) 9th Annual Hydro Championships Site: Brimfield Dam W. Army CD 15 Rhodes St. Milbury, Mass 01527 Sponsor: New England RC Modelers

**Sept. 7-8—Taft, Calif.** (AA) San Valeros Annual Free Flight Meet Site: Taft. (AI) Hunter CD 9486 Sandusky Arleta Calif 91331 Sponsor: (AI) Valeros MAC

**Sept. 7-8—Monroe, NC.** (AA) MR/RC Air Races Site: Monroe RC Club B. Helms CD 800 Tyvola. Charlotte NC 28210 Sponsor: Monroe RC Club

**Sept. 7-8—Dayton, Ohio.** Buzzin' Buzzards CL Jamboree Site: Municipal Flying Field R. Perry CD 5016 Angelita Ave. Dayton Ohio 45424 Sponsor: Dayton Buzzin' Buzzards

**Sept. 7-8—Muncie, Ind.** (AA) Mid-State CL Championships Site: We. (AI) Park M. Eber CD RR #1, Box 213A, Seima, Ind 47383 Sponsor: Muncie Contrainers MAC

**Sept. 7-8—Rhinebeck, NY.** Rhinebeck WWI Jamboree Site: Rhinebeck G. (AI) CD South Greenhaven. Stormville NY 12582 Sponsor: Mid Hudson RC Society, Inc

**Sept. 7-8—Hobbs, NM.** (AA) HARKS Annual Contest Site: Hobbs J. Cox CD 1917 N. McKinley St. Hobbs NM 88240 Sponsor: Hobbs Aero Radio Control Society Inc

**Sept. 7-8—Ft. Wayne, Ind.** (AA) 21st Annual Mid-States RC Contest Site: Smith. (AI) Airport P. Gieseking CD 1212 Delta Blvd. Wayne Ind 46805 Sponsor: Fort Wayne Flying Circles

**Sept. 7-8—Gridley, Calif.** (AI) Gathering of the Ducks #5 for FF Site: Gridley W. Ghio CD 329 Redondo Ct. Stockton Calif 95207 Sponsor: Stockton Gas Model Association

**Sept. 8—Elyria, Ohio.** (AA) Dave Wellich's CL Red Light Special Site: Lorain County Comm. College L. Baker CD 4023 Victory Blvd. Cleveland Ohio 44135 Sponsor: The Happy Hookers

**Sept. 8—N. Liberty, Iowa.** (AI) Iowa City Aero Hawks 2nd Annual Glider Contest Site: Creech Golf Course T. Edmonds CD 1 Lakeview Knoll Rd. Iowa City Iowa 52240 Sponsor: Iowa City Aero Hawks

**Sept. 8—Lake Elsinore, Calif.** (AI) Rockwell International Flightmasters "Picnic R.O.W." Site: Lake Elsinore R. Brinkner CD 4239 Centinela Los Angeles Calif 90086 Sponsor: Rockwell International Flightmasters

**Sept. 8—Middletown, R.I.** (AA) CL Class AA Meet Site: Middle School Field. (AI) Myriner CD 25 Rankin Ave. Middletown R.I. 03840 Sponsor: Ct. Aero Modelers of Middletown R.I.

**Sept. 8—Hadley, Mass.** (AI) "Pulled-Up Powerless Planes Meet Site: Hampshire County RCers Field R. Dash CD 19 Kelleher Dr. S. Dearfield Mass 01373 Sponsor: Hampshire County Radio Controllers

**Sept. 8—Mowasque, Ill.** (AI) Decatur Blunderbirds Fun Fly Site: Koenigs Airport D. Holtfreder CD PO Box. Blue Mounds Ill 62513 Sponsor: Decatur Blunderbirds

**Sept. 8—Ft. Worth, Tex.** (AI) Pylon Meet Site: Ft. Worth. (AI) Cox CD 209 Rolling Hills. Ft. Worth Texas

**Sept. 8—Pensacola, Fla.** (AI) North Florida RC Fun Fly Site: Elyson. (AI) R. Hanft CD RR 1 Box 3348 Elberta Ala 36530 Sponsor: Northwest Florida Radio Control Modelers

**Sept. 8—Easton, Penna.** (AA) B.A.M. FF Bash IV Site: Easton Ave. Balthiem Penna 18017 Sponsor: Bath Area Modelers

**Sept. 8—Wyandotte, Mich.** (BI) Indian City Fun Fly Site: Wyandotte E. Lynn CD 3167 2nd Wyandotte Mich 48192 Sponsor: Indian City RC Club Inc

**Sept. 8—Nashville, Tenn.** (AA) Music City CL Festival Site: Warner Park W. Henry CD. Elyson Fields Nashville Tenn 37211

**Sept. 8—Brighton, Wis.** (AA) 31st Annual FF Midwestern States Championships Site: Bong Field P. Satich CD 3851 W 62nd Pl. Chicago Ill 60629 Sponsor: Chicago Aeronauts

**Sept. 14—Waco, Tex.** (AI) 7th H.O.T. M.A.C. Fly for Fun Meet Site: Waco C. Harten CD 918 Wedgewood Waco Tex 76710 Sponsor: H.O.T. M.A.C.

**Sept. 14—Omaha, Neb.** (AI) M.A.S.S. Monthly Soaring Meet Site: The Grass Pad J. Simpson CD 2636 Forbes Omaha Neb 68123

**Sept. 14-15—W. Suffield, Conn.** (AI) Nor East Air Races 74 Site: (AI) Field B. Williams CD 347 Southwick Rd. Westfield Mass 01085 Sponsor: Northern Connecticut RC Club

**Sept. 14-15—Taft, Calif.** (AA) Thunderbuds 28th FF Annual Site: Taft J. Norcross CD 4836 W 123rd St. Hawthorne Calif 90250 Sponsor: Thunderbuds

**Sept. 14-15—Elmer, N.Y.** (AI) Harris. (AI) Open RC Glider Meet Site: Harris Hill E. Heyworth CD 1210 Wolcott Dr. Horsehead NY 14845 Sponsor: Harris Hill Lift Over Drag

**Sept. 14-15—Wichita, Kans.** (AA) Fall Pylon Meet Site: 13th & Webb Rds J. Finley CD. (AI) Central Wichita, Kans 67208 Sponsor: Wichita RC Club

**Sept. 14-15—Bossier City, La.** (AA) Sharks RC Annual Site: Bossier City B. Lund CD 707 N. Acres Springfield, La 71075 Sponsor: Shreveport Radio Control Society, Inc

**Sept. 14-15—Columbus, Miss.** (AA) Second Annual J.D.C. RC Model Airplane Contest Site: Columbus. (AI) J. Brownlee CD 257 Clay St. Columbus AFB Miss 39701 Sponsor: Columbus Prop Busters

**Sept. 15—Detroit, Mich.** (AA) Fall CL Internationals Site: Rouge Park J. Lucas CD 20463 Andmore, Detroit, Mich 48235 Sponsor: Strathmore. (AI) Club of Detroit

**Sept. 15—Downers Grove, Ill.** (AI) 1st Woodland Races for 1-4 Midger Site: Downers Grove. (AI) Vopalek CD 7819 Chestnut Ave. Woodridge Ill 60515 Sponsor: Woodland Aeromodelers

**Sept. 15—Rockaway, NY.** (AI) PARCS 1974 East Coast Scale Championship Site: Rockaway. (AI) J. D'Amico CD 9224 Rost Pl. Brooklyn NY 11236 Sponsor: Penn Ave. RC Society

**Sept. 15—Glastonbury, Conn.** (AI) Glastonbury Modelers FF Fall Fly In Site: Glastonbury Meadows E. Novak CD 150 Price St. Bridgeport, Conn 06610 Sponsor: Glastonbury Modelers

**Sept. 15—Queens, NY.** (AA) Assoc. of MAC of Greater NY CL Meet Site: Flushing Meadow Park J. Dreesch CD 86-17 108 St. Richmond Hill NY 11418

**Sept. 15—Lakehurst, N.J.** (AI) 7th Annual B.C.R.C. & M.C.R.C. RC Meet Site: NAS Lakehurst J. Johnson CD 2529 S. American St. Philadelphia, Penn 19148 Sponsor: Burlington County RC Club

**Sept. 15—Ohio.** (AA) NOFA Timers Contest Site: Pending K. Ernde CD 1638 Lakeland Ave. Lakewood, Ohio 44101 Sponsor: Northern Ohio FF Association

**Sept. 15—Colorado Springs, Colo.** Pikes Peak Area Championships for 1-4 Midger Site: Colorado Springs J. Aycock CD 1422 Tesla Dr. Colorado Springs, Colo 80909 Sponsor: Pikes Peak RC Club

**Sept. 15—Westfield, Ind.** (AI) Hamilton RC Fly for Fun Site: Westfield H. Vandiver CD 10714 Lakeview Dr. Carmel Ind 46032 Sponsor: Hamilton Flying Modelers

**Sept. 15—Urbana, Ill.** (AI) Midwest All-Start CL Meet Site: (AI) Airport J. Laws CD Box 191 Hindabro, Ill 61930 Sponsor: Champions-Urbana Aeronauts

**Sept. 15—Mansfield, Ohio.** (AI) Electronic Flyers Pattern Contest Site: Mt Zion Rd. (AI) Kalish CD 235 Cline Ave. Mansfield Ohio 22730 Sponsor: Electronic Flyers

**Sept. 21-22—Ontario, Canada.** (AA) United Pylon Racing Circuit Championship Race Site: Waterford E. Landefeld. PO #2, 11151 Jamison Rd. E. Aurora, NY 14052 Sponsor: Niagara County MAC Inc

**Sept. 21-22—Tullahoma, Tenn.** (AI) Coffee Air Foilers Fall RC Thermal Meet Site: Tullahoma L. Webster CD 1000 Sycamore Cr. Manchester Tenn 37355 Sponsor: Coffee Airfoilers MAC

**Sept. 21-22—Huntsville, Ala.** (AA) MACH FF & Oldtimer Meet Site: Old Huntsville Airport. (AI) Deep CD 8820 Union Dr. SE Huntsville Ala 35802 Sponsor: Model Airplane Club of Huntsville

**Sept. 21-22—Raleigh, NC.** (AA) RD/RC 8th Annual Meet Site: RD/RC Field. (AI) Sanderson CD 3410 Baugh St. Raleigh, NC 27604 Sponsor: Raleigh-Durham RC Club

**Sept. 21-22—Virginia Beach, Va.** (AI) Tidewater RC Annual Meet Site: Virginia Beach J. Raynor CD 5529 Nashua Rd. Virginia Beach Va 23462 Sponsor: Tidewater RC Inc

**Sept. 21-22—Oklahoma City, Okla.** (AI) TORKS RC Meet Site: TORKS Field C. Brownlee CD 3033 Edging Stone Oklahoma City, Okla

**Sept. 22—Bristol, Conn.** (AA) MUM CL Classic Meet Site: Edgewood School J. Scott CD 285 Witches Rock Rd. Bristol, Conn 06010 Sponsor: Hornets

**Sept. 22—St. Paul, Minn.** (BI) Minnesota State Pattern Championships Site: Shoreview J. Brown CD 1458-97th Ave. NW, Coon Rapids Minn 55433 Sponsor: St. Paul Model RCers Inc

**Sept. 22—E. Bridgewater, Mass.** South Shore RC Meet Site: State Correctional Inst. E. Thompson CD 57 Rathbun St. Coventry, R.I. 02816 Sponsor: South Shore RC

**Sept. 22—Dayton, Ohio.** (AI) Ohio Pylon Racing Association Championships Site: Dayton W. Hager CD 6200 Rye Dr. Dayton, Ohio 45424 Sponsor: Dayton Wingmasters

**Sept. 22—Brighton, Wis.** (AI) 12th Chicago Aeronauts Fall Timers Contest Site: Bong Field P. Satich CD 3851 W 62nd Pl. Chicago, Ill 60629 Sponsor: Chicago Aeronauts

**Sept. 22—Suffolk, L.I., NY.** (AI) Suffolk Falcons 8th Annual Hydro Meet Site: Suffolk T. Plack CD 53 Winkie Dr. Northport L.I. NY 11768 Sponsor: Suffolk Falcons

**Sept. 22—Nassau, NY.** (AA) Long Island Drone Society 18th Annual Pattern Meet Site: Mitchell Field W. Fuori CD. Farmwood Dr. Commack NY 11725 Sponsor: Long Island Drone Society

**Sept. 22—Ft. Lauderdale, Fla.** (AI) Ugly Stick Races Site: Ft. Lauderdale W. Williamson CD 8300 NW 38th St. Coral Springs Fla 33065 Sponsor: Gateway RC Club

**Sept. 22—Wichita, Kans.** (AA) 7th Annual FF & CL Fall Rally Site: 13th & Webb L. Woodard CD 1658 N. Battin Wichita, Kans 67218 Sponsor: Wichita Hawks

**Sept. 22—Detroit, Mich.** (AA) Michigan Exchange Clubs FF & CL Model Airplane Meet Site: Ford Utica Test Track E. Stoll CD 30471 Manse. Clemens Mich 48043 Sponsor: Detroit Balsa Bugs

**Sept. 22—Glastonbury, Conn.** (AI) East Coast Old Timer Champs Site: Meadow Rd. J. Whittles CD 43 Fairview Ave. Old Saybrook Conn 06475 Sponsor: Society of Antique Modelers Chapter 7

**Sept. 22—Washington, D.C.** (AA) Fall Quadrathlon & Balloon Bust Site: Anacostia NAS W. Sanders CD 9735 52nd Ave. College Park, Md 20741 Sponsor: Sky Lancers of Washington

**Sept. 28-29—Somers, NY.** (AI) Somers RC Scale. (AI) Sport Scale Open Meet Site: Somers Flying Field C. Babbin CD Dawn Hill Goldens Bridge NY 10526

**Sept. 28-29—Lakeside, Calif.** (AA) San Diego Drones Annual RC Meet Site: Lakeside G. Lewis CD 1624 Chiswick Ct. El Cajon, Calif 92020 Sponsor: San Diego Drones, Inc

**Sept. 28-29—Greenville, SC.** (AA) W.C.R.C. Fall Pattern Contest Site: Greenville J. Bradham CD 20 Longmeadow Taylors, SC 29687 Sponsor: W.C.R.C.

**Sept. 28-29—Columbus, Miss.** (AA) Second Annual J.D.C. CL Model Airplane Contest Site: Columbus Air Force Base J. Brownlee CD 257 Clay St. Columbus AFB Miss 38701 Sponsor: Columbus Prop Busters

**Sept. 28-29—Fresno, Calif.** (AA) Randolls Round Up "Annual 35th" for Cat I Site: Fresno F. Ginder, CD 8740 E. Ashlan, Fresno, Calif 93727 Sponsor: Fresno Gas Model Club

**Sept. 28-29—Ballston Spa, NY.** (AI) Empire State Pylon Racing Site: Saratoga City Airport. (AI) Hull CD 15 Brookview Dr. Schenectady NY 12303 Sponsor: Thunderbuds

**Sept. 28-29—Fresno, Calif.** (AI) 14th Annual Stockton Old Timers Meet Site: Fresno. (AI) Douglas CD 5303 Calderwood Ln. San Jose Calif 95118 Sponsor: Oakland Cloud Dusters

**Sept. 28-29—Amarillo, Tex.** (AA) ARKS 14th Annual Contest for RC Site: Amarillo J. Franklin CD 2700 John Dr. Amarillo, Tex 79110 Sponsor: Amarillo RK Society

**Sept. 28-29—Clovis, NM.** Clovis MADS Fun Fly Meet Site: Clovis E. Harvey CD, Star Rk Box 48, Clovis, NM 88101 Sponsor: Clovis MADS

**Sept. 29—Kansas City, Mo.** (AI) Sky Devils Meet for CL Site: Swops Park J. Wright CD 2816 Coll. Independence, Mo 64082 Sponsor: Sky Devils MAC of KC Mo

**Sept. 29—Mentor, Ohio.** (AI) M.A.R.C.S. 5th 1-4 Midger Championships Site: Tyler Blvd R. Penko CD 21151 Westport Ave. Euclid Ohio 44123 Sponsor: Mentor Area RC Society

**Sept. 29—Dallas, Tex.** (AI) 13th Annual FF Fall Bash Site: Dallas M. Fedor CD 3021 Duff Dr. Arlington, Tex Sponsor: Dallas Cliff Cloud Climbers

**Sept. 29—Mesquite, Tex.** (AI) 4th Annual A & B Pattern & Sport Scale Meet Site: Samuels Park East P. Merrill CD 2800 Leighann Ln. Arlington, Tex 76010 Sponsor: Golden Triangle RC Club

**Sept. 29—Salem, Ill.** (AA) McDonnell Douglas FF Contest Site: Salem Leckrone Airport J. Bennett CD 324 Helfenstein Ave., St. Louis, Mo 63118 Sponsor: McDonnell Douglas FF Club



# M-n-M

## RADIOMODELS

Try M-n-M HOBBIES & CRAFTS for your mail needs. Chicago-land's finest Hobby Shop carries in stock all items for the hobbyist. We wrap, insure, and ship blk. UPS or mail your order anywhere in the U.S.A. for a minimal service charge.

We guarantee your personal satisfaction whether you call, write, or order by pigeon.

# M n M Hobbies & Crafts

Send \$1.00 for 6 Bi-monthly SALES BULLETINS - All at discount prices

RC AIRPLANES  
RC BOATS  
RC CARS  
RC ACCESSORIES  
Radios - Proline, EK,  
Kraft, MRC, RS  
HO, N, O TRAINS ACCESS.  
U-CONTROL PLANES ACCESS.  
HELICOPTERS GLIDERS

WEAVING LOOMS  
NEEDLE POINT  
ARTIST SUPPLIES  
PLAQUES & FRAMES

EMBROIDERY KITS  
GLASS & BOTTLE CUT KITS  
MOLDS - CLAY - WAX  
PAINT BY NUMBER

## M n M Hobbies & Crafts

929 S. Cedar Rd. New Lenox, IL 60451  
815-485-2898

To Indiana 1-80 Joliet



Cedar Rd.

N S

U.S. 30

Joliet

## LISTER ON L/D=

(Continued from page 62)

quickly as do the three NACA 4-digit sections. In plain words, the Eppler derivatives all have their backsides sticking up in the air like overweight recruits doing pushups. But, that's an Eppler characteristic and people swear by the Epplers, so I guess its okay.

What this all boils down to is that any of the six ought to be capable of bringing home a prize - two in the classes mentioned, because they are highly cambered, they are thin, and they have general characteristics that came from contest winners. They are a bit like the young fillies of thoroughbred race horse parents—brand new, untried and with big potential payoffs (with all this manure, there's got to be a pony somewhere inside the pile).

So much for the design board...paper is one thing, but hardware is something else. Let's talk about available test results in the

field on this new group. What I was looking for was some kind of a test program to evaluate at least the airfoils at the extreme ends of the camber location.

Why the extremes? In a nutshell, if the stuff that seems far out works out, upon conventional airfoil practice, then the sections in between should also have at least an equally good prospect of being worthwhile.

Of the six sections offered, the one that seemed farthest out was the NACA 7306, because of its forward camber. This was the section that I wanted to have verified by flight test. To make it even more of an acid test, I did two more things. The first was the application—I built a 1/2A free flight ship rather than a Nordic or a soarer. This would test the climb as well as the glide performance.

The second thing I did was to increase the thickness just a bit, from 6% to 7%. This is in the direction of higher wing profile drag, but

"YOU'LL WONDER HOW YOU BUILT WINGS WITHOUT IT"

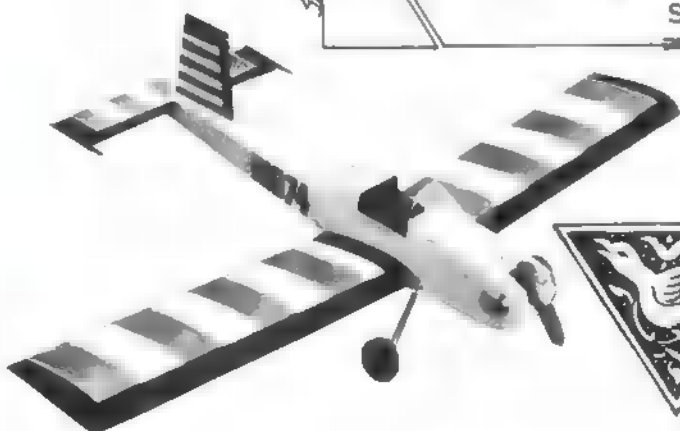


A-JUSTO-JIG  
WING JIG

Write for FREE brochure

A-JUSTO-JIG Box 850  
Westfield, Indiana 46074

# sureFLITE PRODUCTS



# Volks Kit

STAND OFF SCALE

SPAN: 48 in.  
ENGINES: .051-.10-.15  
AREA: 340 sq.in.  
RADIOS: 2 to 3 channels.

## Ideal Low Winger with Great Trainer Stability

### FEATURES:

- FULL SIZE PLANS
- ISOMETRIC VIEWS
- DIE CUTTING
- FULL FLYING RUDDER & STAB
- HARDWARE PACK

## Achtung!

If you're looking for a good looking, fun, stand off scale, "Low-winger" that's easy to fly, look no futher. The VOLKSKIT is designed both for easy construction and yet strong enough to be knocked around your local small flying site. Perfect for an economical .10 and a 2 to 3 channel system.

# sureFLITE PRODUCTS

VOLKSKIT  
KIT #104RC

\$24.95

656 NOME ROAD  
VALPARAISO, INDIANA  
46383





# DISCOUNT PRICES

## OUR POLICY

# FAST SERVICE

ORDERS SHIPPED WITHIN 24 HOURS! ) WE ADVERTISE ONLY WHAT WE STOCK / IF OUT OF STOCK WE SEND AN IMMEDIATE REFUND (NO CREDIT SLIPS) / WE SELL FOR LESS!

PRO-LINE FUTABA KRAFT

FOR THE BEST RADIO DEAL ANYWHERE! SEND FOR OUR DISCOUNT CATALOG.

|                          |             |                   |                             |              |                   |                            |             |                   |
|--------------------------|-------------|-------------------|-----------------------------|--------------|-------------------|----------------------------|-------------|-------------------|
| <b>Southern R/C Kits</b> | <b>List</b> | <b>Hobby Barn</b> | <b>Turb AX 1 ducted fan</b> | <b>69.95</b> | <b>56.99</b>      | <b>Jensen</b>              | <b>List</b> | <b>Hobby Barn</b> |
| Muslang-X                | 59.95       | 46.99             | Super Tigre X-40 speed      | 65.00        | 52.99             | Das Ugly Stik              | 54.95       | 42.99             |
| Tigertail Dix            | 99.50       | 79.99             | O.S. 40 SR                  | 69.98        | 55.99             | Wing Kit                   | 18.95       | 15.99             |
| Tigertail Std.           | 69.95       | 53.99             | <b>K &amp; B Engines</b>    | <b>List</b>  | <b>Hobby Barn</b> | <b>Dave Platt Kits</b>     | <b>List</b> | <b>Hobby Barn</b> |
| Sweetater Dix.           | 99.50       | 79.99             | Veco .19 RC                 | 38.00        | 26.99             | Spitfire                   | 59.95       | 41.99             |
| Sweetater Std.           | 69.95       | 53.99             | Veco .61 RC                 | 85.00        | 59.99             | T-28B (new)                | 64.95       | 46.99             |
| Bobcat                   | 52.95       | 39.99             | K & B .40 RC                | 45.00        | 33.99             | <b>Slig Kits</b>           | <b>List</b> | <b>Hobby Barn</b> |
| <b>Midwest Kits</b>      | <b>List</b> | <b>Hobby Barn</b> | <b>Bud Nosen's Kits</b>     | <b>List</b>  | <b>Hobby Barn</b> | Liberty Sport Bipe         | 43.95       | 38.99             |
| Strikemaster             | 42.95       | 29.99             | Aeronca Champ               | 99.95        | 82.99             | Kadet                      | 23.95       | 19.99             |
| Cardinal Squire          | 54.95       | 35.99             | <b>J.P. Models</b>          | <b>List</b>  | <b>Hobby Barn</b> | Komander                   | 29.95       | 23.99             |
| Mach I                   | 54.95       | 35.99             | Dart II                     | 64.50        | 53.99             | Komet                      | 37.95       | 30.99             |
| <b>PB Products</b>       | <b>List</b> | <b>Hobby Barn</b> | Javelin                     | 49.50        | 41.99             | P-51                       | 42.95       | 35.99             |
| Miss Dara                | 89.95       | 77.99             | <b>Kraft Kits</b>           | <b>List</b>  | <b>Hobby Barn</b> | <b>Kraft Radio</b>         | <b>List</b> | <b>Hobby Barn</b> |
| Miss                     | 79.95       | 65.99             | Wingmaster                  | 29.95        | 22.99             | KP 5 ch. Sport System      | 319.95      | 249.99            |
| T2-A                     | 94.95       | 83.99             | <b>J &amp; J Kits</b>       | <b>List</b>  | <b>Hobby Barn</b> | <b>Futaba</b>              | <b>List</b> | <b>Hobby Barn</b> |
| <b>Kits</b>              | <b>List</b> | <b>Hobby Barn</b> | Eyeball                     | 54.85        | 35.99             | 2 ch. System               | 119.95      | 99.99             |
| RCM Sportster            | 34.95       | 25.99             | Bangshoe                    | 54.95        | 35.99             | 6 ch. System               | 299.95      | 239.99            |
| RCM Basic Trainer        | 29.95       | 19.99             | J-Craft                     |              | 29.99             | <b>World Expert Series</b> | <b>List</b> | <b>Hobby Barn</b> |
| RCM Trainer              | 49.95       | 36.99             | <b>Fox Engines</b>          | <b>List</b>  | <b>Hobby Barn</b> | 5 ch. System               | 329.00      | 199.99            |
| RCM Trainer              | 42.95       | 30.99             | .15 RC                      | 20.95        | 14.99             | 7 ch. System               | 399.00      | 239.99            |
| Super Ka                 | 57.95       | 40.99             | .60 RC Eagle                | 89.95        | 44.99             | (with 5 servos)            |             | 239.99            |
| Super Kaos .40           | 44.95       | 32.99             | .78 RC                      | 84.95        | 55.99             |                            |             |                   |
| <b>Proctor Kits</b>      | <b>List</b> | <b>Hobby Barn</b> |                             |              |                   |                            |             |                   |
| Nieuport II              | 119.50      | 89.99             |                             |              |                   |                            |             |                   |
| Antic Bipe               | 89.50       | 69.99             |                             |              |                   |                            |             |                   |
| Antic                    | 69.50       | 49.99             |                             |              |                   |                            |             |                   |

# THE HOBBY BARN

P.O. Box 17856 • Tucson, Arizona 85710

POSTAGE AND HANDLING: Orders under \$5.00, add .50; \$5.01 to \$10.00, add .90; \$10.01 to \$20.00, add \$1.25; \$20.01 to \$30.00, add \$2.00; \$30.01 to \$50.00, add \$2.50; \$50.01 to \$80.00, add \$3.25; over \$80.00, add \$4.50. Add extra for Air Mail.

MANY MORE GREAT BUYS —  
SEND FOR OUR NEW  
CATALOG TODAY — \$1.00



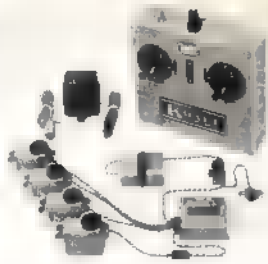
ACADEMY OF MODEL AERONAUTICS, 806 Fifteenth St., N.W., Washington, D.C. 20005

Over 30,000 American Aircraft Modeler readers currently receive their magazine as members of the Academy of Model Aeronautics. If you are not yet one of these readers enjoying the benefits of AMA membership, use the card below to join the world's largest sport aviation organization. In addition to receiving **American Aircraft Modeler**, you will:

1. ■ protected for up to one million dollars against liability claims arising from accidents caused by operation of model planes, cars, boats, or rockets.
2. Receive special bonus offer coupons for free or bargain priced model aircraft products: books, accessories, samples, catalogs, and many other items. The coupons alone have a value several times the membership cost.
3. Be represented before national agencies and organizations which control or can affect model activities, e.g., the Federal Aviation Administration, the Federal Communications Commission, the Federation Aeronautique Internationale, the National Aeronautic Association, and many others. The fact that there are
4. ■ eligible to participate in events sanctioned by AMA such as: flying contests, fun flies, record trials, etc. Over 1000 such events were held across the country in 1973.
5. Receive monthly AMA news detailing activities of individuals and clubs, national and international news, a calendar of events (showing date, location, and type of activity, person to contact for more information), actions of special AMA committees, and many more items pertaining to what's happening in model aviation.

USE THIS COUPON NOW TO ENJOY THESE BENEFITS AS SOON AS POSSIBLE.





**Why fly Brand X, when you buy and fly a Kraft System prices like these!**

|                              | LIST PRICE | MAIL-A-WAYS PRICE |
|------------------------------|------------|-------------------|
| KP-5 SPORT SERIES (pictured) | 319.95     | 245.00            |
| KP-2-35 SPORT SERIES         | 139.95     | 115.00            |
| KP-2-35 SPORT SERIES         | 149.95     | 122.50            |
| KP-6B SERIES SEVENTY-FOUR    | 419.95     | 317.50            |
| KP-6B SERIES SEVENTY-FOUR    |            | 332.50            |
| KP-7B SERIES SEVENTY-FOUR    | 489.95     |                   |
| PP-75 SERIES SEVENTY-FOUR    |            | 369.00            |
| KP-7Z SERIES SEVENTY-FOUR    | 499.95     |                   |

SEND BANK CASHIER'S CHECK, POSTAL MONEY ORDER(S) OR CASH TO SPEED YOUR ORDER. PLEASE LIST THREE CHOICES OF FREQUENCY DESIRED & YOUR CHOICE OF SERVOS.



Send your name and address for FREE Kraft catalog and FREE color brochure ordering envelope. 20% off all Kraft products.

**Complete Custom Model Building... over 100 planes in stock, ready to go.**

**Send for free listing sheet.**

**Specials of the month:**

**WEBRA BLACKHEAD** List: \$134  
Our Price, While They Last: \$91  
plus shipping

**MRC MARK V SPECIAL \$220**  
While They Last, Plus Shipping Charges

**R/C Hobby Shop, Inc.**  
746 Hamilton Ave.  
Waterbury, Conn.  
06706

In other tests, they found an rpm gain of 500-600. Prather's tests indicate that the gain is extremely erratic, rarely in excess of 100 rpm. Jeff Bertken tried an exhaust extension on his K&B in racing with Larry Leonard: he won the race because Larry cut, but Jeff's engine didn't unload as well as it had without extension. It doesn't really look as though the extension does anything consistently, except get the exhaust out of the engine compartment, which is why the contest board should allow them.

The core of the contest management was superb: Chuck Smith, a first-class CD, and the assistance of the Bakersfield (Spickler, Jeanie and Jerry Christensen) was invaluable. But on Saturday, the flagmen and counters were rather young Boy Scouts, who simply didn't have the size and strength to man the flags effectively, and who occasionally had to learn the fundamentals of reading a stop watch. The problems were not very serious, but Sunday, a crew of Valley Flyers took over the Boy Scout chores and things went much more smoothly. On the P.A. system, Dick Sonhelm worked solidly for two full days until he nearly hoarse, but really improves a race to have competent announcing for spectators as well as for the participants.

The final results:

| EXPERT CLASS      |           |     |                |
|-------------------|-----------|-----|----------------|
| 1. Terry Prather  | L/R-Toni  | ST  | 28 pts 1:17.3  |
| 2. Kent Hooy      | L/R-A     | K&B | 24 pts         |
| 3. Ron Hall       | Minnow    | K&B | 24 pts fly-off |
| 4. Joe Vartanian  | L/R-Toni  | ST  | 23 pts         |
| 5. Bob Smith      | Miss DARA | K&B | 22 pts         |
| 6. Ed Hotaling    | El Benito | K&B | 21 pts fly-off |
| 7. Whit Stockwell | Miss DARA | K&B | 21 pts         |
| 8. Dan McCan      | Miss DARA | K&B | 19 pts         |
| 9. Don Powell     | Minnow    | K&B | 19 pts fly-off |
| 10. George Flynn  | Miss DARA | ST  | 19 pts         |
| 11. Jeff Barham   | Miss DARA | K&B | 19 pts         |
| 12. Wes Morris    | Miss DARA | ST  | 19 pts         |

| STANDARD CLASS   |  |                  |  |
|------------------|--|------------------|--|
| 1. Bob Johannes  |  | 6. Bob Nox       |  |
| 2. Joe Howard    |  | 7. Joaquin Alba  |  |
| 3. Lou Governale |  | 8. Jerry Boyce   |  |
| 4. Steve Sica    |  | 9. Kain Davidson |  |
| 5. Bob Emery     |  | 10. Sunny Myers  |  |

## MARONEY ON RC

(Continued from page 66)

be accused of negligence and dereliction if I did not reveal some of the negative aspects (in fine print of course).

Although you'll be soaring some of the time (underscore some), you do run the risk of cuts and contusions and/or becoming afflicted with a rash from the vegetation which naturally abounds. In any case, if you survive the ordeal of descent and ascent when retrieving your ship, apply for a merit badge in mountain climbing. You shall have certainly earned it!

The next hazard has never occurred, but do not rule out the possibility... you may be called upon to wade or swim in frigid waters to rescue your glider. If swimming is not your forte, I strongly recommend a preparatory course at the YMCA. And while you're there, take a course in administering first aid.

The dividends paid for being adequately prepared for a slope flying session are always welcome, so the next excellent item for your old kit bag is a bottle of snake bite remedy. This can be imbibed as the pretext of warding off the cold or to bolster faltering courage.

Although you can furnish your own brand, I strongly recommend "Yaqui Doc." This particular elixir is as old as the west and was originally brewed concocted by a wise old Shaman of the Yaqui tribe of Indians. This stuff is a rare item to obtain today, but go to your favorite liquor emporium and ask for it by name. I'm sure if they don't have it, they will provide a comparable substitute.

And so, if you've never slope soared, I can only end by saying, "you don't know what you're missing." Go to it, tiger!

## MEUSER ON FF

(Continued from page 66)

fuselage must be provided with some means of gripping to enable the filer to exert a pull of about 20 lb. The neatest scheme that has appeared is the method used by Carl Almendinger. Basically, it consists of a wire hook and a wooden tee-handle. The hook engages a loop of wire attached securely to



**Industrial Woodworking**

## ALIPHATIC RESIN WOOD GLUE

**IN 5 MINUTES SANDS WITHOUT CLOGGING**

### THE PROVEN GLUE FOR RC MODELERS

Outstanding 'all-purpose' glue, tested and approved for precision assembly in RC model construction. Faster tack and grab. Bonds without clamps to an invisible glue line. Sets fast. Dries clear. Minimal sanding. Glued joint stronger than the wood itself. Available in 4 oz., 1 oz. and 17 oz. plastic squeeze bottles and larger sizes.

### WILHOLD GLUES, INC.

8707 Millergrove Drive  
Santa Fe Springs, Calif. 90670  
2943 W. Carroll Ave., Chicago, Ill. 60612



"standard for use in radio control model aircraft construction"

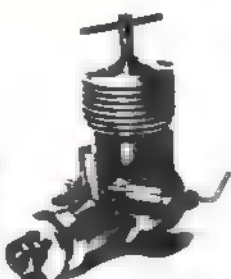
available at leading hobby, hardware and building material stores



# P.A.W. DIESELS High Performance

1.49 - \$18.49 PP  
2.49 \$20.19 PP  
19DS \$22.29 PP

Hobby Hideaway Delavan, Ill.  
(309)244 7389 61734



## SUPERSCALE

WW II SCALE AIRCRAFT PLANS



FOR A COMPLETELY ILLUSTRATED CATALOG CONTAINING A PRINT OF EACH SUPERSCALE DRAWING SEND \$1.00 TO: SUPERSCALE PO BOX 201 ARLINGTON, TEXAS 76010

## ITALIAN RUBBER

GOOD NEWS! FILATI strip rubber is back to former PIRELLI quality.

New Shipment, \$8.95 per hank + \$.80 postage

Send \$.25 for new 1974 Catalog

F.A.I. Model Supply  
P.O. Box 8778  
Phoenix, Arizona 85066

## BRIAN TAYLOR PLANS

1st, 5th & 7th British Nats



### F6 - F5 HELLCAT

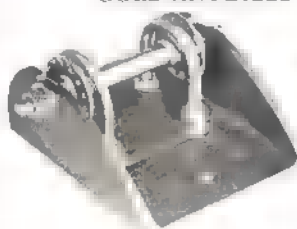
1 1/2" 64" Span Plans 9.95 Cowl 12.00 Canopy 3.50 Complete Pkg. 22.00 P.P.

Also TEMEST MKV 61 1/2" as above  
F4U-1 1 1/2" Plans 9.95 Cowl 9.00 Canopy  
new BEST IN SCALE CATALOG \$1.00

## BOB HOLMAN PLANS

P.O. Box 741M, San Bernardino, Calif. 91701

LSF DESIGNED  
TURNAROUND PULLEY  
— ALUMINUM CHANNEL —  
GOLD ANODIZED



ONLY  
\$13.75 pp.

Light residents  
add 6%  
tax

ALSO AVAILABLE  
ALUMINUM TOW WINCH REELS  
3" Hub \$21.95 pp.  
4" Hub \$26.95 pp.

WESTLAKE MANUFACTURING INC.

2205 Hollywood Way, Burbank, Ca 91505 - Phone: (818) 845-4091

# CORBEN "Super Ace"

HOMEBUILT, OPEN COCKPIT, BARNSTORMING.

RECAPTURE THE THRILL OF THE  
THAT CLASSIC ERA OF AMERICAN AVIATION  
WITH V.E.'S



Span 56 in.

Area 505 sq in.

Eng. 40-50

VK MODEL AIRCRAFT CO.

12072 Main Rd. Rt #5

Akron, Ohio 44312

the fuselage. A thumb-operated trigger pushes the wire loop off the end of the hook.

Postal Contests: Fly your local field, and mail your flight score to the contest director; that's all there is to it. While it lacks the carnival atmosphere of face-to-face competition, it certainly consumes less gas. The National Free Flight Society regularly sponsors two series of "postals." For the youngsters, there is a bimonthly series of postals featuring easy-to-build models; write to Richard Whitten, P.O. Box 176, Wall Street Station, New York, N.Y. 10005 for the details, and for a complimentary issue of *Star Skippers*, the free flight newsletter for the junior set.

For modelers of all ages, there is the annual Dick Black Memorial Postal Contest. Flights must be made any day during September or October. Events included are FAI Power, Wakefield, A/I Nordic, A/2 Nordic, 80-gram Coupe d'Hiver, combined class AMA Gas, Hand-Launched Glider, and Unlimited Rubber. Results are to be mailed to Steve Geraghty, 2858 Pinecrest Court, San Jose, Calif. 95121, by November 15. Modelers from all countries may enter both series of postals.

## McCULLOUGH ON RC

(Continued from page 68)

sent in advance with the photo order and you take pot luck, depending on how the file researcher interprets your photo descriptions. In most cases, this works out fairly well.

I generally get good results by sending for a small number of prints of a specific airplane, including a request for some detail shots such as of the instrument panel or cockpit. After seeing this survey of what is available, it is easier to fill in the collection desired by describing other views. The coverage in the Air Force files ranges from the early days to the present, but is somewhat erratic. On some planes, although they can cover you up with

photos of the entire airplane, there are no detail or close-up shots to be had.

One offbeat way to get a look at angles not generally seen is to buy "Wreck" file shots which have an overturned or upended example 8 x 10" glossies cost \$1.25 each (color is sometimes obtainable though at higher costs). Write for Photo Ordering Information sheet for full details. Send money order, not personal check, for photos. Address: Department of the Air Force, HQ Aero Space Audio-Visual Service (MAC), 1221 S. Fern St., Arlington, Va. 22202.

The Navy photo ordering procedure is the same as the USAF, except that they have only their most recent photos, and they want an appointment at least a day in advance for personal visits. 8 x 10" glossies \$1.25 each. Write: Commanding Officer, Naval Photographic Center, Anacostia Naval Air Station, Washington, D.C. 20390.

Marine Corps pictures can be ordered at \$1.25 for each 8 x 10" from: Commandant, Marine Corps, Combat Pictorial Branch, Code A03P, HQ Marine Corps, Washington, D.C. 20380.

Most U.S. Army aviation photographs of World War II and prior years are in the Air Force files, but for aircraft of the Army since then, send order to: Commander, U.S. Army Audio Visual Agency, Room 5A518, The Pentagon, Washington, D.C. 20310. Bargain prices here, 55 cents per 8 x 10" glossy!

The National Air and Space Museum Library, Smithsonian Institution, Washington, D.C. 20560, is another repository of large quantities of fine scale date material. Their charge for 8 x 10" glossies is \$2.00, and 15 cents per page of photocopy.

We'll have more on this later, including where to get some of the detail and close-up shots the USAF photo section doesn't have.

Ament: Fred Komlosy, writing in the Palm Beach Aeronauts News, says: "The second hardest thing in the world to do is add weight to the nose of an already overweight scale model to bring it into balance. The hardest thing in the world to do is fly that same scale

## TAKING OFF?

COMPLETE THIS CARD AND  
ATTACH A MAILING LABEL  
FROM RECENT ISSUE.....

## LET US KNOW WHERE YOU LAND!

When you move please let us know in advance—five weeks notice would help! Attach a current AAM mailing label in this space, check appropriate box below and mail to: Subscription Dept., American Aircraft Modeler, 733 15th St., N.W., Washington, D.C. 20005

WANT TO SUBSCRIBE OR RENEW?

appropriate boxes and enclose payment (Offer limited to U.S.A. and Canada).

☐ CHANGE OF ADDRESS

☐ NEW SUBSCRIPTION

☐ RENEW SUBSCRIPTION

MA73

☐ 1 Year \$12.00

☐ 2 Years \$21.00

☐ 3 Years \$28.00

NAME

ADDRESS

CITY/STATE

ZIP

AMERICAN AIRCRAFT MODELER / 733 15th St., N.W., Washington, D.C. 20005

model if it is out of balance and the weight has not been added." We'll add to that sage advice the further suggestion to put some extra weight in the nose for the test flights and go just a bit nose heavy. After the model is completely tested and trimmed, you can take out some of the weight and shift the CG rearward to increase aerobatic reactions. Fact is, a lot of people who do test fly deliberately nose heavy find they like the smooth, non-sensitive reaction to the controls so much that they never change the CG. There wouldn't be so many scale model snap rolls during landing flares and steep takeoffs if the optimum theoretical balance point is carefully figured—and then moved up!

**Bigger Engines For Sport Scale?:** So far, four separate fliers have submitted formal requests to the Scale Contest Board that the engine displacement limit in the current AMA Sport Scale regulations be raised above .61 cu. inches, more change proposals than for any other rule. Two suggest a total displacement not to exceed 1.25 cu. inches for multi-engines with single engine limit to be .80 cu. inches. One calls for a simple maximum of 1.25 cu. inches for all engines, same as the present AMA Scale engine rules.

This would permit some larger engines than 80s, such as Bill Bertrand's re-work of the Ohlsson and Rice used in his quarter-sized Fokker D-7. With the largest engine on the field, it must have been one of the safest RC models, certainly more so than the standard lower displacement pattern and pylon models.

The fourth rules version would permit a 2.40 total displacement with a 1.6 cu. inch single engine limit. This would allow unmodified standard Ohlsson and Rice similar size industrial engines.

Incidentally, the former cut-off deadline of June 1st for making proposals for changes in the rules has been advanced to September 1st to take advantage of experiences gained during the 1974 contest season, including the NATS. Any AMA member may propose changes in Sport or AMA Scale by filling out the standard form available from headquarters. All proposals properly filed will later be voted on and, if passed, included in the 1976 Rule Book.

**Dick Graham, of Liberty Sport fame, has this 3 1/4" scale version of the diminutive home-built Scamp. It is exact scale, powered by a Veco 61, and controlled by EK. Test flights, as witnessed by your columnist, were outstanding. (So outstanding that AAM will present the Scamp as a full construction article—php.)**



**Brooklyn PARKS Go For a Fifth:** The Pennsylvania Avenue RC Society of Brooklyn have scheduled their Fifth Annual East Coast RC Scale Championships for Sunday, Sept. 15. Both AMA and Stand-Off Scale will be flown. With \$50. to the winner in each category, and cash and trophies to fifth place, the event should draw a large entry. For details, contact: Joe D'Amico, 9224 Rost Place, Brooklyn, N.Y. (212) CL1-1680.

## MOONEY ON FF

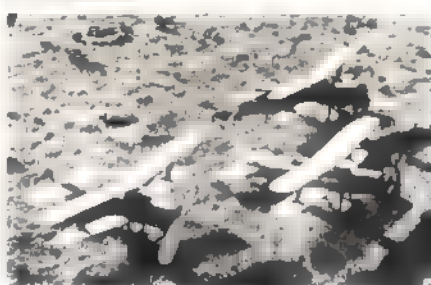
(Continued from page 68)

wheels are supplied. The tissue paper I supplied in the right colors—I do mean colors in the plural. The BA4-B comes with blue, yellow, and red tissue, the Cougar with Red and Black. License numbers provided in the form of thin, sticky-backed mylar, so they'll stick to the model even if the covering is left undoped.



Chuck Markos of Deerfield, Illinois, prepares his Guillo for a flight. (Photo by Dick Stouffer)

**A trio of Laird LC-DCs.** From foreground, they are Walt Mooney's, Curtiss Mooney's and Joel Rieman's.



Bill Stromen gets lots of miles from his balsa by building Peanut models. Here, a Fokker D-VI and Dr-I.

**Careful attention to launch attitude of his Nieuport 28 is given by Frank Zagar. The Guillo kit took third place in the "not-too-scale" event hosted by the Chicago Aero-nauts. (Photo by Dick Stouffer)**



These models join Peck's series of Peanuts, which include the Pietenpol Air Camper, Miles M18, Drulne Turbulent, and Clip Wing J3 Cub. In the future, Peck has a P51-D Mustang and a Zero scheduled. I've seen both of the prototypes and they fly really well.

**Refining Trim:** One of the rules for success at contests is: Have your model well tested. At the last Flightmasters indoor contest, Clarence Mather won rubber scale with his Stormovick. This model flies significantly better than the competition—it should—Clarence built it more than 15 years ago.

## INDEX TO ADVERTISERS SEPTEMBER 1974

|                              |                       |
|------------------------------|-----------------------|
| Ace R/C, Inc.                | 38, 39                |
| A-Justo-Jig                  | 105                   |
| C&H Sales                    | 106                   |
| Cannon Electronics           | 93                    |
| Cleveland Model Supply Co.   | 96                    |
| Centuri Engineering          | 81                    |
| Coverite                     | 91                    |
| L.M. Cox Mfg. Co., Inc.      | 67                    |
| DA Enterprises               | 84                    |
| D&B Model Aircraft Co., Inc. | 109                   |
| Du-Bro Products, Inc.        | 25                    |
| Dumas Products, Inc.         | 5                     |
| Edson Enterprises            | 74                    |
| F.A.I. Model Supply          | 111                   |
| Flyline Models               | 81                    |
| Futaba Industries—U.S.A.     | 42                    |
| G.E.M. Models                | 80                    |
| Galler Electronics           | 92                    |
| Goldberg Models, Inc., Carl  | 13                    |
| Gas Model Products           | 82                    |
| Grish Brothers               | 83                    |
| Hand Crafted Models          | 96                    |
| Heath Company                | 55                    |
| The Hobby Barn               | 109                   |
| Hobby Hideaway               | 111                   |
| Hobby Lobby                  | 6, 7                  |
| Hobby Shack                  | 14, 15                |
| Hobbypoxy                    | 81                    |
| Bob Holman                   | 111                   |
| Indy R/C Sales               | 95                    |
| J&J Distributors             | 85                    |
| J.C.M. Specialties           | 93                    |
| JoMac Products               | 83                    |
| Kayaff, Inc.                 | 94                    |
| K&B Manufacturing            | 82                    |
| K&S Engineering              | 84                    |
| Kraft Great Lakes            | 83                    |
| Kraft Systems                | Inside back cover     |
| Larry's Hobby Supply         | 92                    |
| Mail-a-Way Models            | 110                   |
| Midwest Products Co.         | 3                     |
| Miniature Aircraft           | 106                   |
| M.n.M. Radiomodels           | 105                   |
| Model Rectifier Corp.        | Outside back cover    |
| Morgan, Sid                  | 83                    |
| Nelson Model Products        | 80                    |
| Octura Models                | 91                    |
| Pactra Industries, Inc.      | 96                    |
| Phil-Leys                    | 82                    |
| Platt Models, Inc., Dave     | 94                    |
| Pro Line Electronics         | 37                    |
| Pylon Publications           | 90                    |
| RC Hobby Shop, Inc.          | 110                   |
| R&S Hobby Products, Inc.     | 92                    |
| Robert Mfg. Co.              | 77                    |
| Rockland County R/C Club     | 79                    |
| Ross Power, Inc.             | 79                    |
| Scientific Models, Inc.      | Inside front cover, 1 |
| Semco Model Engineering Co.  | 107                   |
| Shamrock Competition Imports | 76                    |
| Sig Manufacturing Co.        | 58, 59                |
| Solo-Launch                  | 80                    |
| Sonic-Tronics, Inc.          | 77                    |
| Squadron Kites               | 76                    |
| Sterling Models, Inc.        | 70, 71, 72, 73        |
| Su-Pr-Line Products          | 84                    |
| Superscale                   | 111                   |
| Sure Filte Products          | 105                   |
| Tatone Products              | 81                    |
| Top Filte Models, Inc.       | 47                    |
| Tower Hobbies                | 88, 89                |
| VK Model Aircraft Co.        | 111                   |
| Westlake Mfg., Inc.          | 111                   |
| Wihoid Glues, Inc.           | 110                   |
| Williams Bros.               | 78                    |
| World Engines, Inc.          | 75                    |
| X-acto, Inc.                 | 90                    |
| C.A. Zaic Co.                | 78                    |

**U.S. Captures World RC Helicopter Duration Record—See Details in Next Month's AAM.**

\* \* \*

More RC modelers read AAM than any other magazine—that's why we're the world's largest model publication.



## QUALITY BOBBY SHOPS

Quality Hobby Shop spacings are sold on a six-month basis at \$7.00 per month, payable in advance. All insertions must be consecutive. No mention of mail-order business is permitted. Closing Date: 10th of third preceding month.

### MASSACHUSETTS-CAMBRIDGE, WELLESLEY

Model planes, motors, railroads, ships, radio control equipment and accessories, and racing supplies. Open 10 to 11 daily, 9:30 to 6 Sat.

#### CROSBY'S HOBBY CENTRES

1704 Mass. Ave., Cambridge 547-4389  
Jct. 16 # 9, Wellesley 235-2486

### ARIZONA-PHOENIX (SUNNYSLOPE)

Headquarters for Radio Control Equipment—Kits—Motors—Retractable Gear—Fuel—Complete line of U/C, F/F, Rockets, R/C Boats, Cars, etc. If you want, we build your Radio Control Plane. Built-up R/C Planes in stock. "We give help in your building." Hours—Weekdays, 10-9; Sunday, 9-2.

#### ACE HOBBY AND CRAFT SHOP

942 W. Hatcher Rd.  
Phoenix, Arizona 85021

### OHIO-CLEVELAND

We carry the most complete line in Ohio for your model airplane hobby. Also large HO train department. Boats, R/C, motors, parts, supplies, dope, balsa, tools, books, magazines, etc.

#### NATIONAL HOBBY, INC.

5238 Ridge Road (216) 749-4750

### OREGON-PORTLAND

Portland's Headquarters for Radio Control Equipment, all major brands all at discount prices. "Shop American." "The Friendly Shop."

#### AMERICAN PET MODEL AIRPLANE SUPPLY COMPANY

4308 S.E. King Rd.  
In the Disco Mart Shopping Center  
Ph. 654-6777 Zip: 97222

### HONG KONG-KOWLOON

The most complete stock of aeromodeling and hobby supplies in the Far East. Sole agents for Graupner, O.S. and Min-X and agents for Vernon, Frog, Solarbo and many others.

#### RADAR CO., LTD.

Observatory Road Kowloon, Hong Kong  
K-680-507

### OREGON-MILTON FREEWATER

Planes R/C, C/L and F/F. Boats, Trains in all scales and cars. Top lines in plastics. Modeling accessories, motors and finishing materials. Also artists and craft supplies, books and kits. "Just don't buy a gift, buy a hobby." Hours 6 days a week 10:00 AM to 5:30 PM. Closed Sundays.

#### THE HOBBY SHACK

P.O. Box 406, 604 N. Main St.,  
Milton Freewater, Oregon 97862

### NEW YORK-BUFFALO

Factory authorized Orbit and Micro-Avonics sales-service center. New Orbit and Micro radio systems at very best prices. Complete stock of parts and accessories. Immediate service on all Orbit and 1970 Micro systems. Guaranteed reconditioned previously owned Orbit systems always available.

#### ORBIT NORTHEAST

3833 Harlem Rd. 14215 Ph. (716) 836-6860

### WEST VIRGINIA-PARKERSBURG

Planes-R/C and Control Line, Engines and accessories. All kinds of Goodies! Kraft, Orbit and Pro-Line Radios, Sig Products, Lionel Trains. Also HO and N gauge trains and accessories. HO slot track in store. HO slot cars and parts. Hobby supplies.

#### WILSON HOBBY SHOP

Park Shopping Center  
Parkersburg, W. Va. 26101 304-428-0713

### MEXICO-MEXICO CITY

The most complete stock of aeromodeling and Radio Control supplies in Mexican Republic.

Factory authorized Kraft System, Pro-Line System, Webra and H.P. Engines.

Sales and Service center, all best items and the best prices.

We accept Bancomatic and Bancomer Cards.

#### MATHELIN MODELISMO

Retorno 3 DeGral, Ignacio Zaragoza No. 47  
Mexico 9, D.F. Tel: 5-71-75-07

### SOUTH CAROLINA-NEAR BOWMAN

Located on Road 36 just off interstate 26. Most complete U-control center in entire state. Discount prices. Free use of excellent circles and R/C strips. Open 4-7:30 Tues-Fri.

and all day Saturdays. Flying every Sunday afternoon. Plenty of help for beginners.

**ACTION HOBBIES MODEL AIRPORT**  
Route 1, Box 63AB Bowman, S.C. 29018  
Tel: (804) 829-2368

### COLORADO-COLORADO SPRINGS

Complete line of U-control, Free Flight and Engines. Headquarters for R/C. We feature Royal Classic, Lee Engines, Sig Products, Master Charge Discount to AMA Members. "We Fly What We Sell."

#### CUSTOM HOBBIES

2408 E. Platte Ave., Colorado Springs  
Colorado 80909 (303) 634-7400

### GEORGIA-DECATUR

HO Railroads, Planes, Model Car Racing Open 11 AM to 10 PM Metro Atlanta's Friendly hobby shop.

#### HOBBY HOUSE DECATUR SPEEDWAY

130 E. Ponce de Leon 378-2253

### MICHIGAN-DETROIT (FERNOALE)

Trains, planes, stamps, coins, R-ways. Over 50,000 items for hobbyists. Mich largest antique train collection. Look for our 55' RR crossing sign. Arnold Rapido.

#### MODELS HOBBY CENTER

22524 Woodward Ave. (Zip 48220) LI-3-2242

### ALABAMA-BIRMINGHAM

Most complete line of plastics, U control, Orbit, Micro equip. & repairs, R/C kits, OS engs., HO, N, O, & S gauge trains, supplies, Tyco, Aurora Race Sets & Access. Help for beginners. Hours: 9-5:30 weekdays & Sat, Thurs. 9-9.

#### HOMWOOD CYCLE HOBBY SHOP

2834 S. 18th St.  
Birmingham, Alabama 35209  
(205) 879-3986

### CALIFORNIA-LAKEWOOD

Westcoast R/C Headquarters, complete line, MRC, Futaba, Kraft, RS Systems, Orbit, etc. Also complete line of kits, R/C and C/L. SEE US.

#### HOBBY WAREHOUSE

4128 E. South St. Lakewood, Calif. 90713  
(213) 531-1413

### ALABAMA-BIRMINGHAM

Most complete line of plastics, U-control, Orbit & Micro equipment, repairs, R/C kits, OS engines, HO, N, O, & S gauge trains & supplies, Tyco, Aurora Race Sets & Accessories. Help for beginners. Hrs. 9-5:30 weekdays and Saturday, Thursday 9-9.

#### HOMWOOD CYCLE & HOBBY SHOP

2834 S. 18th Street  
Birmingham, Alabama 35209  
879-3986

### INDIANA-EVANSVILLE

We specialize in Radio Control.

#### THE HOBBY SHOP

2030 Booneville Highway  
Evansville, Ind. 47711 (812) 422-6324

## CLASSIFIED ADS

Rates: 10 cents per word including name and address. 14 words. Send remittance with copy and order to: AMERICAN AIRCRAFT MODELER, 733 Fifteenth St., N.W. Washington, D.C. 20005.

Collector Wants: Any unusual miniature engines you have. Multi cylinder cycle, single or multi cylinder cycle gas engines, Stuart or other multi cylinder steam engines. Antique gas engines also desired. Send description and price you want to: Chris J. Botsolas, P.O. Box 46, Fords, N.J. 08863.

MODEL AVIATION BOOKS: Out-of-print. List 25 cents. JOHN ROBY, 3703D Nassau, San Diego, Calif. 92115.

BUILDING AN AEROPLANE: This 1912 reprint contains plans for constructing a Blériot monoplane and a Curtiss Biplane plus some real surprises. \$3.95-PP. ED'S SALES, Dept.-D, 613 Grumman, Oklahoma City, Okla. 73110.

Available NOW! The 1974 Radio Control Products Directory. Information and pictures on over 1100 products. Only \$2.75, plus free mid-year supplement. Send check or MO to: RC Products Directory, Dept. C, 733 15th Street, N.W., Washington, D.C. 20005.

HELIUM BLIMP: Fly it in your living room. Easy to build plans—\$2.00. KNOX PRODUCTS, 1107 Montesano, Waukegan, Ill. 60085.

Fast Personal Service! Low Prices! Write for free R/C kits, engines, supplies sheet. Northwest R/C Electronics, 19812 48th Ave., West, M1, Lynnwood, Washington 98036 (206) 778-5652.

Choice vintage model magazines. Lists 30 cents stamps. AVMODMAGS, 107 Alameda, Redwood City, CA. 94062.

R/C AUTO RACE CARS—1/8 SCALE—1971 & 1972 NATIONAL OVAL & ROAD RACE CHAMPIONS. The most NATIONALS Trophies (?) 1973. Send for free catalog. ASSOCIATED ELECTRICS, 1928 East Edinger, Santa Ana, Calif. 92705.

MODEL PLANE PLANT FOR SALE: RC and CL, at liquidating value, distinguished name, established 30 years. Mr. Lurie, Hunt Realtors, 47 West Huron, Buffalo, N.Y. 14202.

SOLID STATE proportional speed controls for electric RC aircraft and boats. Model SC-1, forward control to 15 amperes, \$29.95. Model SC-3, forward and reverse control to 10 amperes, \$39.95. Postpaid. Order or send for specifications. Benson Hobby Products, 6240 Placita Pomona, Tucson, Ariz. 85704.

TAUBE 1/72 scale 3-views. 1912 Rumpler, Rumpler 3C, Rumpler 4C, Albatros FT, 1914 Jeannin, Kondor H. All six \$2.00. Richard M. Zasadeny, Dept. A18, 2664 Beck St., Warren, Ohio 44484.

Randolph Dopes, Sig Products, DuBro, and many more lines in stock. Send 25 cents for big new catalog. Liddell Products, 8228 Hatter Road, Newfane, N.Y. 14108.

Obsolete engines, kits, surplus supplies, scale RC's wanted. Thomas Chua, 15 Beach, Kotakinabalu, Malaysia.

New Osmax "Blackhead" 60 F.I. RC \$55.98, Max 40 F.I. RC \$39.99, Supertigre 71 F.I. RC \$71.98, Bluehead 60, \$67.98 Saturn 60 RC \$53.98. Price includes mailing and insurance.

RADIOS AND ENGINES REPAIRED: Nationwide service. \$35 maximum charge on radio. \$12.50 on engines. Parts extra, at reduced prices. Includes all Heath kits, World Engines, Kraft, Royals, O.S., Supertigre, Webra, Enya. 90 day guarantee. Enclose check and phone number. Aero Tech Products, P.O. Box 182, Lake Hiawatha, N.J. 07034. Phone (201) 887-7672. Questions? Write! We'll call you.

Power 12, 6 or 1 1/2 volts. Starter, pump, glow plug power from one battery—\$15. Charger—\$5.00. The Plant, Box 404, Cliffside, N.C. 28024.

## AAM IS INVOLVED

Sponsoring contests is only one of the ways we contribute to the hobby. This year, we are sponsors for:

#### NATS

##### SOAR Nats

##### Mint-Julep Meet

##### Maryland State Championships

##### Valley Flyers Races

##### LSF Championships

##### Helicopter NATS

##### Florida Bipe Championships

##### Southwest Q/M Championships

##### Western States Pylon Championships

## WE CONTRIBUTE BECAUSE WE CARE

#### DON'T MISS THE

Annual Southwest Q/M Championships  
December 7-8, 1974



# Bakersfield.....



(1) Jeff Bertken won the marbles with his DARA 11 (stretched-wing version of the famous kit). (2) Trophy for fastest time. Terry Prather's will be right under Bob Smith's 1973 name plate. 1:15.7 is moving! (3) From way down south (of the border), Joaquin with his bird-wing paint job. (4) Big Ron Neff took fourth in a fly-off against Bob Smith. He flew Spickler-designed Minnow. (5) Johnny Brodbeck's wife will get a kick out of this shot (and so, probably, will Johnny). That's Jeanie Christianson he's "thanking" for the trophy. (6) Jim Jensen with the controversial pipe and his X-40. This Li'l Toni is a pretty purple and violet. (7) Wouldn't you like to have one of the leading engine customizers as your pit crew and caller? Clarence and Jack Lee with their Super DARA. (8) The top father/son team in the country, Al and Terry Prather. Model is Prather's Li'l Toni.

**T**he annual BARKS Formula I race at Bakersfield, California, invariably produces the fastest times of the season. It has traditionally been held in early June, by which time the temperature is up around 95° in the shade, but there isn't any shade. This year it was held in the middle of May, and we nearly froze. In the past, the hot dry air has been credited for the exceptional speeds at Bakersfield. But we now have to predict that the guys will all want to race in cold windy weather.

Until this race, the K&B Schnuerles had never turned under 1:20. Ron Neff, hero of the Bakersfield hosts, a local insurance salesman who looks like a tackle for the Rams, turned a 1:19.5 with a Minnow designed by Glen Spickler, the organizer of this event from its inception several years ago. His engine was (they swear!) a stock K&B, with a propeller that still had the original varnish, a Rev-Up 9 # 7 that hadn't even been sanded for balance! He later turned an incredible 1:16.5, after several others

had followed his lead in making a shambles of the 1:20 barrier.

Jeff Bertken, who in the end won the contest in a brilliant fly-off with Kent Nagy, first turned a 1:19.5 and then a 1:18.4 with his Miss DARA. Not to be out-done by his former partner on the BS Racing Team, Bob Smith went out and first turned a 1:25.8 for eleven laps, and then did a 1:16.4 for a proper ten laps. Bob's caller these days is his lovely wife Cathy, and it is obvious that she does a great job.

There are several husband/wife teams in Formula I racing these days, and the number of father/son teams has proliferated to the point where you can't even keep track of them all. My son Whit and I were, I believe, the first of these teams; then came the Prathers, the McCans, and now the Atzeis, the Sicas, the Johanneses, and several others.

But 1:16.4 was not the fastest time. It was just the fastest K&B time. If you've followed racing at all, you can guess who did it. That's right: it was

Terry Prather. Terry Prather, in his second heat—after being beaten by Kent Nagy in his first heat—apparently decided he didn't care for coming in second, so he screwed on his best prop and told his father Al Prather to call the scatter pylon a little tighter. He turned in an incredible 1:15.7, with plenty of clocks around to confirm that it was at least that fast (I had him at 1:15.1). My guess is that the new "speed barrier" of 1:15 will be broken before the NATS this year. It's pretty discouraging to do a 1:20 and come in second, but that happened several times at Bakersfield.

In spite of the high speeds, this was one of the safest races ever. Among the really fast aircraft, there was not a single crash! In fact, every one of the top ten finishers in the expert category went home with his number-one bird unblemished. There was one mid-air among the experts, which totalled Tom Christopher's aging Ole Tiger (it was in its third year of competition: who can complain about that?). I think one has to conclude that it is not speed which

The first races of the season saw a new record, lots of fast, safe flying, and some indications of things to come. / by Bob Stockwell



wipes them out.

There is little sentiment, so far as I can discover, for slowing them down in California. There were 104 entries at the Bakersfield Race: 44 in expert and 60 in standard class. There are a few experts who ought to face the truth and start flying in standard class; and some of the guys in standard who are turning under 1:30 will no doubt soon move up to expert. However, on the whole the races were extremely well-balanced and equalized for interesting competition.

As evidence that the competition was well-balanced, I cite the fact that not a single flier went through his six rounds without a defeat. There was a fly-off for 1st, for 3rd, and for 7-10 in expert; and for 1st, 4th, 6th, and 9th in standard. In fact 9 out of 10 in standard had to fly-off for their final positions, and all but two in expert had to do the same (John Brodbeck took 5th on points, and Dan McCan 6th).

While the contestants were mainly from California, there were four entries from Mexico (Joaquin Alba, Manual

Sierra, Jose Amezcua, and Jorge Amor), who are all great competitors; one from the rain forests of the great Northwest (Bob Root, who had to make some repairs after his first landing and then crashed with a flutter problem in his second heat).

Mr. Consistency from Maryland, the 1973 NMPRA Champion, Bob Violett, took his engine back to Maryland to tell his partner Cliff Telford it needs some more work. He was flying as fast as he was at the Thanksgiving race where he took home all the marbles, but he wasn't flying any faster, whereas lots of other people were. The weather didn't help any: he came to California last November and ended up with a miserable cold and the worst sunburn in history; this time he lost his voice to laryngitis and another miserable cold. We hope he'll try us again—honest, our weather isn't always this bad!

The perpetual fast-time trophy went to Terry Prather; last year it was Bob Smith. Terry was flying his own Li'l Toni, an airplane which he is kitting and

for which he already—before it's in production—has some 200 advance orders. He hopes to have these new birds out in time for the NATS. His engine (you'll never guess!) was the Supertigre X-40. The customizer was Terry himself, with some help from Jim Jensen. Jensen is flying one of Terry's new birds with a Supertigre, and he also turned under 1:20. Tom Tusing is another of the Prather Li'l Toni and Supertigre group.

The California competition is beginning to shape up as a set of loose team-like groupings: Terry Prather heads the Supertigre contingent, with Jensen, Tusing, Roger Owens, Joe Vartanian, and perhaps a couple of others. Bob Smith heads the K&B DARA contingent, with Jeff Bertken, Dan McCan, Chuck Smith and Charlie Shaw. Larry Leonard and Kent Nagy head the LR1-A contingent, with John Brodbeck, Joe Foster, and Bud Anders. Each is associated with a particular company—Prather Products, PB Products, A&L Distributors, and each has a professional stake in winning. There is no company sponsorship—they are not professional teams, in that sense, at all, and I am not in any way suggesting that there is anything reprehensible about this grouping. It makes for lots of fun for all and sharpens the competition.

It would be impossible in the space I have left to thank all of the Bakersfield workers: Spickler, Jeanie and Jerry Christianson, and the whole BARKS crew on the pylons, the lap counters, and the desk. Suffice it to say that, as always they did an outstanding job. M.A.N. was a co-sponsor of the event, though this year Walt Schroeder was unable to be present. He has done an enormous amount for pylon racing and we missed him. (We know of one East Coast Publisher and Editor who did make the scene.)

#### RESULTS EXPERT

- |                  |                |
|------------------|----------------|
| 1. Jeff Bertken  | Miss DARA, K&B |
| 2. Kent Nagy     | LR1-A, K&B     |
| 3. Bob Smith     | Miss DARA, K&B |
| 4. Ron Neff      | Minnow, K&B    |
| 5. John Brodbeck | LR1-A, K&B     |
| 6. Dan McCan     | Miss DARA, K&B |
| 7. Terry Prather | Li'l Toni, ST  |
| 8. Charlie Shaw  | Miss DARA, K&B |
| 9. Joe Foster    | LR1-A, K&B     |
| 10. Loren McCray | Miss DARA, K&B |

#### STANDARD

- |                    |                      |
|--------------------|----------------------|
| 1. Joe Howard      | 6. Steve Sica        |
| 2. Jerry Silverman | 7. Richard Governale |
| 3. Robert Johannes | 8. Bobby Johannes    |
| 4. Frank Szeakula  | 9. Howard Reed       |
| 5. Merle Hoem      | 10. Bob Emery        |

A final note: There was lots of discussion about the ST "pipes," but (though I don't have it officially yet) it appears most likely that they will be permitted under strict conditions: maximum 5" in length, maximum 3/4" diameter. Of course, what's good for the goose is good for the gander: K&B can run pipes too, provided they meet these specs. Don't take this as official, however. AMA will announce when the ruling is final, this one or some other if my guess is wrong.



COMING IN  
OCTOBER  
AAM



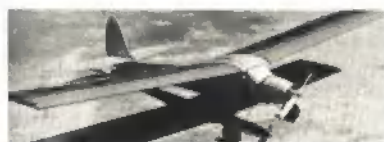
**BLUE ANGEL:** The Man and The Model / by Tsugutaka Yoshioka



**MALLARD:** The bipe for everyone / by Dan DeLuca



**ECLIPSE:** It casts a big shadow / by Hal Cover



**BUSHMASTER:** Old-timer style electric / by Roland Boucher



**MISS LEXINGTON U.S.A.:** A classic in its time / by Wynn Paul

**ALSO:** A New Look at RC Sea-plane Design / It happened in Hangar 4 / Taft FF Championships / The Mint Julep Meet /

**AND OUR STANDARD FEATURES:** Getting Started in RC / New Products Checklist / Where the Action Is / Modeler's Bookshelf

**COMPLETE AMA NEWS SECTION**

# OFF THE SCENE



"How's it going? Gotta wait long for a good thermal?"



"OH MY GOSH, WHAT AN AWFUL FALL! MILDRED! MILLY, HENRY - DID THE WING BREAK?"



Even the OLD PRO can be distracted! CAUTION! Do not underestimate your engine SUCTION force!



"THIS DOESN'T LOOK LIKE A GOOD TIME TO ASK IF WE CAN HOLD THE NEXT MEETING HERE!"



AND YOU MADE HIM GIVE UP HIS TERRY BEAN?



"You'd better win Harry. That's my washing machine up there."



IS IT, OR MAKE THE MOTOR FIT THE PLANE OR THE PLANE FIT THE MOTOR?"

# GOOD AS GOLD



WRITE FOR FREE CATALOG

**KRAFT**  
SYSTEMS, INC.

World's Largest Manufacturer of Proportional R/C Equipment

450 WEST CALIFORNIA AVENUE, P.O. BOX 1268, VISTA, CALIFORNIA 92083



# MRC Mark V

- Integrated circuits that give you reliability without excessive battery drain
- A selective receiver-high output transmitter combination that can handle the interference problems you encounter every day
- Mil spec gold plated connectors that hold under vibration and provide low, low resistance electrical path
- 3-wire servos for positive operation and full power in both drive directions
- Nickel cadmium cells throughout for maximum flight time, economy and reliability.

## MRC ONE YEAR WARRANTY

Model Rectifier Corporation will, within one full year from date of sale, repair your MRC digital proportional R.C. system if defective in materials or workmanship when the dealer validated registration card has been returned to MRC within 10 days from the date of purchase.

This warranty is void if the System has been improperly handled, tampered with, serviced by anyone other than MRC or an authorized representative, or crash damaged. Except for such repair there are no other warranties given. And MRC hereby **EXCLUDES ALL OTHER EXPRESSED AND IMPLIED WARRANTIES.** In no event shall MRC be liable to anyone for consequential or incidental damages except as required by law.

When returning your R.C. system pursuant to this warranty you must follow warranty and repair instructions in the manual. And include \$9.00 to cover postage and handling.

**MODEL RECTIFIER CORPORATION**  
Edison, New Jersey 08817

2500 Woodbridge Avenue



## If it were a commonplace system...It would have a commonplace guarantee

### OUR AIM

It started when MRC decided to produce a system for all sport and competition fliers. One that would be priced within a modelers realistic 5-channel budget. A rig that would surpass others in its price category and outstrip "sport" type sets in range, reliability and resolution.

### OUR ANSWER

Now a year and a half later, the results are in. MRC's Mark V has proven its flawless performance on flying fields around the country. Fliers reporting uncommon reliability, unfaltering response.

### OUR UNCOMMON GUARANTEE

So confident are we in this superior system that we guarantee it in writing for one full year. Not 60 days, or 90 days but 365 days. That's coverage... for no matter what time of year you buy your system, you'll be covered through the flying season and beyond. We can afford to give this guarantee in writing, in every set we sell, because we know it's an uncommonly well designed and manufactured system with proven performance and perfected features. Ask your hobby dealer to show you the set that made the 1-year guarantee a reality. We made it better. So we guarantee it longer.